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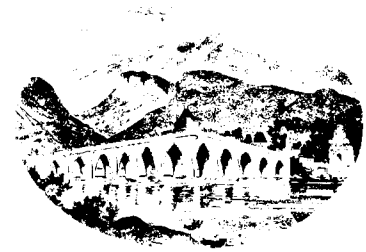

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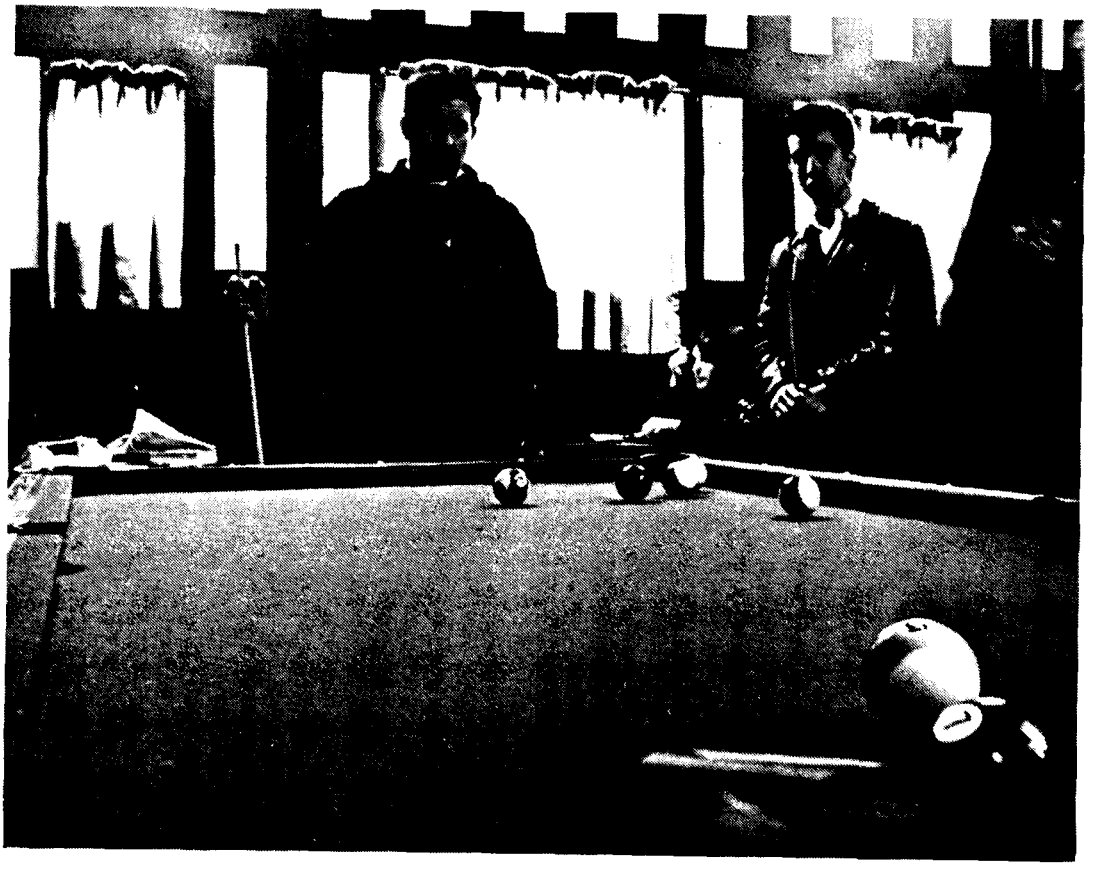

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Published quarterly since 1932 by the United Chapters of Phi Beta Kappa, 1811 Q Street, N.W., Washington, D.C. 20009. Second-class postage paid at Washington, D.C. and at additional mailing offices. Copyright © 1977 by the United Chapters of Phi Beta Kappa.

Send all change of address notices, undeliverable copies, subscription orders and other mail to *Editorial and Circulation Offices:* 1811 Q Street, N.W., Washington, D.C. 20009.

Subscription rates: $2.00 a copy, $8.00 one year, $14.00 two years, $20.00 three years, foreign and Canadian $.75 a year additional for postage.

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The Despairing Optimist . . . . . .

RENÉ DUBOS

Years ago I jotted down a remark that G. B. Shaw is asserted to have made concerning the healthy and prosperous, yet disenchanted, young adults whom he saw in England during the second quarter of the twentieth century: "They've got enough food, sexual freedom, and indoor toilets. Why the deuce aren't they happy?" This remark amused me as a succinct expression of the obvious truth that there is more to happiness than material satisfaction. It interested me because I have often wondered what the signers of the Declaration of Independence had in mind when they listed the pursuit of happiness among the citizen's inalienable rights.

I have also found it puzzling that the expression "joie de vivre" has been adopted into English and other languages, as if the French had copyrighted the pleasures of life. There may be a point in using the words "sputnik" and "bulldozer" in all main languages to acknowledge that the Russians were the first to orbit an object around the earth and the Americans the first to use powerful earth-moving equipment on a large scale, but joie de vivre has been a universal human experience since the beginning of time.

My curiosity about the expressions happiness and joie de vivre has been recently intensified by their frequent use in discussions concerning the quality of life—an ill-defined concept that is now assumed to provide a philosophical basis for the development of the industrialized world and in particular for the formulation of environmental policies.

The French again are style setters in the way they have used language to associate environmental problems with the quality of life. Whereas all countries have distinct technical departments and administrative agencies to deal with pollution, crowding, natural resources, and other aspects of the total environment, all these concerns were, until recently, represented in France at the highest level of government by a full-fledged *Ministère de la Qualité de la Vie*—as if the quality of life could be achieved by governmental edict.

In North America, the medical professions seem eager to take the responsibility that the French government had vested in a cabinet minister. They have recently organized several symposia on "Medicine and the Quality of Life," apparently with the thought that physicians have professional qualifications, not only for the maintenance of health and the management of disease, but for advising on circumstances conducive to happiness. They are also attempting to express, in dollars and cents, the effects of the various medical interventions on the quality of life, so as to incorporate this value into formal cost-effectiveness analyses of medical practice. The assumption by physicians that they can put a price on the quality of life and advise on its achievement hardly seems justified in view of the fact that the rates of suicide, alcoholism, drug addiction, and other social difficulties are higher among them than among comparable professional groups.

Whether one is concerned with the environment or with medical care, joie de vivre and happiness are certainly two of the values that contribute to the quality of life, but what these values are cannot be readily discovered from dictionaries or encyclopedias. Since def-

RENÉ DUBOS is professor emeritus at the Rockefeller University. His newest book, *The Professor, the Institute, and DNA*, is about Oswald T. Avery's life and scientific achievements.

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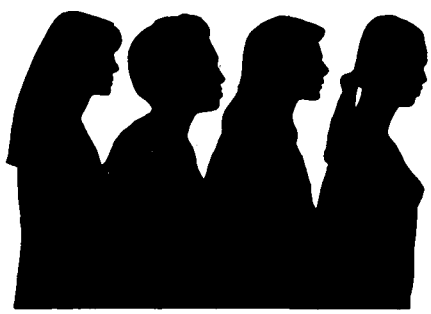

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initions are not likely to be of help in such subtle concepts, I shall take the matter into my own hands and explicate what the expressions joie de vivre and pursuit of happiness mean to me, and how I shall use them here when discussing what determines the quality of life. In so doing I behave, of course, like Humpty-Dumpty affirming in *Alice Through the Looking-Glass,* "When I use a word . . . it means just what I choose it to mean—neither more, nor less." My justification for being arbitrary in this matter of meaning is that the vagueness of the expressions joie de vivre and happiness, as commonly used, goes hand in hand with our uncertainty about the elements involved in the quality of life.

I have not found the expression joie de vivre in any of the few standard French dictionaries at my disposal, even though its meaning is far from self-evident. The *American Heritage Dictionary* translates it as "carefree enjoyment of life," a definition that certainly does not go far enough, and is almost misleading. For example, it does not do justice to the subject of the novel that Emile Zola published under the title *La Joie de vivre,* and for which he had written an elaborate explanation.

The novel is the story of rather mediocre provincial people, victims of the usual sufferings and participants in a few tragic events. One of the striking passages occurs when a maid commits suicide for trivial reasons and her master, on hearing the news, exclaims, "Faut-il être bête pour se tuer?" (You have to be really stupid to kill yourself). This remark is crucial to the story because the master is an old man, completely paralyzed and helpless, and one might assume that his own life was hardly worth living. Zola clearly wants to convey the message that it is stupid to destroy one's own life, whatever its conditions, because, in his words, "La joie de vivre est . . . l'immense désir de vivre qui soutient l'humanité *malgré ses larmes et sa souffrance, malgré l'angoisse de la mort*" [italics mine]. The immense desire to live does indeed persist in humankind, despite tears, sufferings, and thought of death. This persistence accounts for the fact that, paradoxical as it may sound, the joie de vivre is compatible with Unamuno's tragic sense of life—the awareness that all moments of life, even the most joyous, are clouded by the knowledge that death is inevitable.

Few are the human beings who do not regard life as a good thing in itself, whatever its miseries and despite the fact that it must end. Attempts at suicide are rare; many of them are carried out with the hope that they will fail, and indeed are a call for help. The one fundamental experience is to feel life pulsating in one's body, almost irrespective of what one does with this unique attribute.

This is apparently what Albert Schweitzer tried to convey by the expression that has been translated into English as "reverence for life" and into French as "respect de la vie." According to a recent biography of Schweitzer by James Brabazon, neither the English nor the French translation does justice to the original German text, "Ehrfurcht vor dem Leben," which has semimystical overtones of fear before an overwhelming force—of awe before the immensity and power of life. Repeatedly, Schweitzer emphasized that the most elemental perception is not the "cogito" of Descartes, but the very awareness of existence. In his words: "The most immediate fact of man's consciousness is the assertion 'I am life which wills to live, in the midst of other life which also wills to live.' " For him, reverence for life did not mean protecting every living form under all conditions, but rather apprehending the force and continuity of life, as it permeates the vastness of nature.

The sheer ecstasy of existence is, of course, most obvious in the simple well-being that results when life flows through the body in harmonious relationship to the rest of creation. Joie de vivre is, then, a purely biological experience, enchantingly manifested in the playfulness of a kitten, a puppy, a lamb, or a foal during the early spring, and in the relaxed attitude of a cat stretched in the sun or near the heat of a fireplace. Movements like running and climbing are as essential a part of development in young primates as they are in human children; strenuous physical exertion is the joie de vivre expressing itself through the motions of the body and the delights of exploring the external world.

The essential factors of biological joie de vivre exist in every human being because they are inscribed in his genetic code. In fact, this aspect of life has probably not changed significantly since the Stone Age. Sophis-

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ticated as we may be, we still derive some of our most elementary and also most profound satisfactions from the events of everyday life—when we eat, drink, play, and love; when we participate in the life of our social group, either as actors or spectators; when we enjoy the spectacles of nature or simply engage in daydreaming. Today, as in the distant past, young people hunger for emotional and sexual experiences; aged people relish comfort and quietness; people of all ages are sustained by awareness of their biological existence.

One can recognize the carefree joie de vivre in its almost pure biological form among human populations living under primitive circumstances, even among the most underprivileged classes of industrial societies—wherever people relax in the sun, play with their children, enjoy the company of their friends, or participate in communal activities.

The purely biological enjoyment of life can, in addition, evolve into a more subtle experience of universal fellowship with all other humans and even with other forms of life. It derives from the subconscious feeling that humankind is an entity in which the living are bound to the dead and also to the unborn—a sympathy that may even extend to the rest of creation.

Ever since the Stone Age, and in all parts of the world, humans have expressed their awareness of solidarity with other forms of life through ceremonies and festivals that integrate the social group by incarnating experiences and aspirations shared by all members of the group. Rites are not anthropological oddities; they are events that symbolize the past of the community and the vision it has of the future, as well as the way it relates to the forces of the cosmos. The effects of tribal rites are reinforced by the conventions of everyday life. In this regard the most useful members of the social group are not necessarily those who increase its knowledge or productivity, but those who facilitate its biological and communal existence by a reassuring and optimistic attitude that generates the collective joie de vivre.

Joie de vivre involves the organism as a whole, and perhaps the body even more than the mind; it persists throughout life, even though at different levels, since it is fundamentally the perception of biological existence. There are other aspects of the quality of life, however, that involve social and personal values and therefore transcend biological criteria. The word happiness, vague as it is, seems to denote better than any other word the nonbiological values of the quality of life, those that are conditioned by a person's responses to the environment. When considered in this light, happiness is inevitably transient—an expression of the interplay between the person and the environment, both of which are forever changing.

Admittedly, happiness is commonly assumed to be a gift from heaven, almost a passive state of bliss, but this assumption does not fit the facts. In reality, happiness is not a gift; it has to be won. Instead of being a passive state, it depends upon acts of will and commonly involves struggle against hostile circumstances. This is why the signers of the Declaration of Independence wisely referred, not to happiness itself, but only to the inalienable right that each citizen has to pursue happiness in his own way.

Etymologically, the word happiness has the same root as happening, and therefore implies being involved in some enterprise. Furthermore, its first two definitions in the *Unabridged Oxford Dictionary* refer to success in that enterprise:

1. Good fortune or luck in a *particular affair; success* and prosperity.

2. The state of pleasurable content of mind, which results from success or *the attainment of what is considered good.*

The italics in these definitions are mine. I have introduced them to emphasize that happiness, far from being a passive state of bliss, is the result of reaching a particular goal or completing a worthwhile task.

When considered in this light, happiness is conditioned not so much by biological determinants as by highly subjective social and personal values. It may involve painful choices that are not based on biological necessity and may indeed have dangerous biological consequences.

The choices that lead to happiness are rarely made in an attempt to find happiness, but for the sake of some other cause. In fact, the wise men of Buddhism, Judaism, and Christianity, and many philosophers in all

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ages have taught that we cannot find happiness by seeking it. We can hope to find it only by becoming involved in some enterprise that has a value of its own, independent of its effects on our own individual life. What, then, are the enterprises from which we can hope to derive happiness as a by-product? There are as many answers to this question as there are views concerning the quality of life—and these views differ from social group to social group, from person to person. For example, the quality of life does not mean the same thing to a European peasant operating a small family farm, a Texas rancher engaged in large-scale agribusiness, a performing artist hungering for the applause of his public, a monk worshiping God in the silence of a monastery.

The more evolved the social structure in which they live, the more human beings are likely to be concerned with the future instead of deriving their satisfaction from the world around them. Paradoxically, the future we imagine is often more important for us than the present conditions we experience. For this reason, daydreaming may be one of the states most likely to bring happiness.

The dreams of a particular person or society are often more significant than reality in deciding choices and courses of action. At a given time in its historical development, a society may be so eager for economic growth that it will hardly notice murky skies and polluted rivers. The pageantry of nature, the songs of birds, the fragrance of flowers will then be less important for its happiness than the hope of a prosperous future. This state of mind was prevalent in the United States and in Japan during the periods of industrial expansion in these two countries; and it is the official attitude today in many developing countries that are eager to raise their economic level. For the immense majority of people everywhere, environmental quality becomes a conscious determinant of happiness only after the dream of economic security has been fulfilled and the hope for greater prosperity is no longer imperative.

Happiness thus refers primarily to what the society and the person want to do and to become—almost regardless of biological considerations, of comfort, and of physical well-being. Prosperity is the goal for some people, fame for others, and complete independence for still others, as it was for Dostoevsky. "Man only exists for the purpose of proving to himself that he is a man and not an organ stop," he wrote. "He will prove it even if it means physical suffering, even if means turning his back on civilization." For certain artists and scholars, giving expression to their genius is the only worthwhile goal. "Work is more important than life," Katherine Mansfield confided to her journal as she was dying of tuberculosis. "I want to be all that I am capable of becoming, so that I may be . . . a child of the sun." Being a child of the sun means different things to different persons. For some it means capturing the atmosphere of a sunset in a poem or converting a sunrise into splashes of paint on a canvas; for others it means developing reflectors to generate solar energy; and for still others it means returning to a Polynesian way of life.

Some people are so intensely concerned with what they do that they regard symptoms of illness as a contribution to their happiness if these symptoms are associated with greater creativity. "Six weeks with fever is an eternity," Honoré de Balzac wrote. "Hours are then like days . . . and the nights are not lost." When Jean-Paul Sartre was told that he was endangering his health by dosing himself with amphetamines to accelerate his work, he answered, "What is the use of health? . . . I am happier writing a long book which is well-structured and which I consider important than I am remaining in good health." Happiness can thus be found in the sacrifice of one's biological existence on the altar of ideals that are conceived in the soul rather than experienced in the flesh.

The quality of life is such a personal value that it cannot be institutionalized. However, society and medicine can contribute to it by providing conditions for good health and good environments—conditions that are obviously favorable to joie de vivre and to the pursuit of happiness. Social and medical experts can often give useful advice about the expected effects of certain attitudes and courses of action; but they cannot formulate rigid criteria for health and environmental quality because opinions about the good life are not uniform and are forever changing.

In the design of human settlements, for example, it is fairly easy to formulate criteria for

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sanitation, comfort, and efficiency, but it is impossible to create environments that satisfy the tastes of all social groups. Some of the so-called "new cities" of Great Britain are quite successful from many points of view, but the young people living in them get bored simply because their daily life does not offer them sufficient challenge. In Harlow, for instance, many of them commute to London in order to participate in solving the social problems of the slums. Thus an environment must not only be good in its physical characteristics; it must also offer people a diversity of possible ways of living and possible areas of social involvement.

What we mean by good health also changes from time to time and place to place. Obesity was a respected symbol of bourgeois success a century ago but is no longer fashionable. People of all ages now make desperate efforts to control their weight, partly for reasons of health and aesthetics, but partly also because slimness is socially desirable. Another example: the criteria of physical and mental health are different for a young Jewish woman who aspires to success as a fashion model in Paris or New York and for another woman of the same age and size who elects to live in a pioneering kibbutz in the Negev desert. For most people, in fact, health does not mean so much the absence of disease as the ability to conduct life according to personal choices and social conventions.

This behavioral view of health helps to define one way in which medicine can contribute to the quality of life. Inevitably, all forms of organic and mental disease interfere with people's ability to play a desired social role and to reach desired goals—an interference that amounts to a loss of freedom. They go to a healer—that is, any member of the health profession—in the hope of recovering this lost freedom. Even when the disease cannot be cured, the healer can often help the patient to function in a fairly normal way, either by drugs and other forms of medical technology or by advice based on a knowledge of human nature. Bear in mind that "to heal" does not necessarily imply "to cure." It can mean simply helping a patient to achieve a way of life compatible with his own aspirations, even though his disease continues.

This caring (as against curing) aspect of medicine can enhance joie de vivre—the biological satisfaction derived from the mere fact of existence, irrespective of what one does with one's life. It can also help in the pursuit of happiness—living in accordance with individual values that usually transcend biological criteria. It can therefore contribute to the quality of life, which includes both joie de vivre and the pursuit of happiness.

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Life and Letters

Marboro Country

ARISTIDES

Under my desk sits a box that arrived some months ago and remains unopened. It was preceded by a letter from my publisher announcing that a book I had written a few years back was to be remaindered and that I would receive an additional twelve copies before it was sent off to the remainder bookstores. The box contains those copies. I have no complaints about the fate of this book; suffice it to say that it came a long way from realizing the commercial fantasies I harbored for it, which were not slight. The book had an original printing of 10,000 copies. When this was sold out, a second, smaller edition of 2,500 was printed. The book went into a paperback edition, for which I received, by today's standards, a modest sum. It was also brought out in England. The second American cloth edition did not sell out, and it has been sent off, like cattle to the slaughter, to the remainder houses, or what I have come to think of as Marboro Country, after the nation's largest single remainder bookstore.

Sitting there under my desk, the box provokes questions about publishing in America. One of these questions is age-old: whether publishing is a business or an occupation for gentlemen. At various times various answers have been given. At present, I should say, the proper answer is that publishing is neither a business nor an occupation for gentlemen. Today, by and large, a publishing house comes closer to being a combination of a stock brokerage and an advertising agency, but it is suffused with an aura of romance and craziness that makes it less competent than either. But then I am that raging and raving beast, an author, and, as anyone who has read even a modicum of literary history knows, the relationship between authors and publishers over the centuries has often tended to be, to put it gently, adversarial.

When my book was published I had resolved not to go on television to attempt to sell it. My reasons were not complicated. I wrote the book, I felt; let my publishers sell it. Moreover, after watching a good many authors put through their paces on television, I had come to think that their performances were supremely boring. Charming devil though I not so secretly think myself, I had no good reason to believe I could escape the general fate of all authors on television: putting their countrymen to sleep. The year my book appeared, publishers believed absolutely that television was the best medium for selling a book. (Publishers seem to believe in a thing absolutely for roughly two years; then, just as absolutely, they decide not to believe in it.) My publisher pleaded with me to reconsider my decision not to go on television with my book. I called my literary agent, whose counsel in such matters I respect. A phlegmatic Frenchman with majestic common sense, he said: "I am afraid that you must go along with them. If you do not, they will say, 'Ah, intransigent author! The devil with him.'" Hoist by my own modest greed—I tell you frankly, I should not have minded in the least if my book had earned me a few hundreds of thousands of dollars, say seven or eight—I called my publisher back to say that I had changed my mind and would indeed go on television to promote the book.

The first stop on my tour was High Point, North Carolina, where I had been booked to appear on a morning talk show called "Southern Exposure." My publisher's publicity department assured me that the show is watched throughout the South. A dirty mind

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is a perpetual feast, says La Rochefoucauld, and "Southern Exposure" called to my mind the image of a man whose trousers had fallen, revealing his backside. Although I had appeared on television before, I feared that in this instance the revealed backside might be my own. The host of the show was cordial enough, a large man got up in a safari outfit and high-heeled boots, whose good looks seemed to be centered in his teeth. After speaking with me about the format of the show, he brought me into a conference room to meet the other "guests" of the day. These turned out to be a married couple who were midgets and a Mrs. Westmoreland, not the general's wife, but a woman who had won $3,400 on two different national television game shows. ("If you show a lot of enthusiasm," she later said, "your chances of being picked as a contestant are enormously improved.") The midget couple were to go on first, I second, and the professional contestant third; then we would all join together in a final segment to display our utter absence of common interests. My own performance, as I macheted my way through the perplexities, paradoxes, and dolorosities of my book, took only half an hour, although it seemed to last a fortnight. All through the South I imagined men and women watching me over their breakfasts, their heads finally nestling gently, asleep, in plates of scrambled eggs and cereal bowls.

Well, that was certainly hell, I thought as I left the television studio, but hell gone through for a very good cause—my own potential enrichment. I had some time before my plane departed, so I walked the quiet morning streets of High Point. Was there, I inquired at a drugstore, a bookstore in town? There was indeed, quite a large one, I was told, a block up the street. Would my book be in the window, I wondered, given that I had only this morning had my southern exposure? Alas, it was not. Nor was it on the current selections table. Three white-haired ladies ran the ample and commodious shop. I announced my name, the fact that I had only now returned from doing a television show, and asked, in the cause of marketing science, if they had my book or any requests for it. "That name again, sir?" one of the ladies asked. Clever readers will anticipate that no books had been sent, even though the author had been—at a distance of roughly a thousand miles and the expense of roughly three hundred dollars. That was when I concluded that publishing in America was not quite a business.

As for publishing being an occupation for gentlemen, that, in the modern era, seems to have been its early history. In England there were men like William Chatto and Henry Faber, the latter the publisher (and, for a patch, the employer) of T. S. Eliot. In America there were men like Charles Scribner and Alfred Knopf. Knopf especially seemed to epitomize the gentlemanly aspects of publishing at its unsnobbish best. The books turned out under his borzoi imprint were notable for being handsomely made: elegantly designed, finely printed, solidly stitched. In literary matters Knopf and his first wife, Blanche, were connoisseurs; between them they put together a splendid list of American authors and an unrivaled list of European authors. In the 1920s it was Alfred Knopf who put up the capital for H. L. Mencken's lively magazine, *The American Mercury*.

If Alfred Knopf represented the best among publishers in America in this century, among editors at publishing houses the reigning figure was indisputably Maxwell Perkins of the firm of Charles Scribner's Sons. Every profession has its ideal figure, its exemplar. In law such a figure was Clarence Darrow; in medicine it was no particular person but the ideal of the tireless country doctor; and among publishers' editors it has long been Maxwell Perkins. At Scribner's, Perkins (who had been Van Wyck Brooks's roommate at Harvard) was editor for, among other writers, F. Scott Fitzgerald, Ernest Hemingway, and Thomas Wolfe. As his letters reveal, he had all the requisites of his craft: talent, taste, and consummate tact. To his authors he was simultaneously friend, bursar, consultant, and (in the case of Thomas Wolfe, whose baggy monster novels would have been unthinkable without his editorial aid) co-producer.

I myself, during a stint of roughly a year as a publisher's editor, had frequent occasion to think of Alfred Knopf and Maxwell Perkins. The firm I worked for, like so many other publishers in recent years, had just been bought by a larger corporation. The larger

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corporation's chief representative—in effect, our publisher—was a man trained in accounting, though a type of wheeler-dealer not often found among accountants. To help pay for its academic titles, the firm published a series of books on boating. The larger corporation also had very recently purchased a golf magazine. At an editorial meeting, the new publisher, who did not pretend to be interested in literature or scholarship, suggested that we place an ad for our boating books in the golf magazine. "I know these jokers," he said. "If they golf, they sail."

I thought of Maxwell Perkins and of the British tradition of gentlemanly publishing on the day an editor from an old English publishing firm of distinguished imprint walked into my office. In a crisp Oxbridge accent he announced that he was here on a selling trip, attempting to sell the American rights to a number of his firm's titles. From his briefcase he extracted page after page, each one listing a title for sale, a brief description of its content, a biographical note on the author, and a suggested price. I needed to concentrate, at various points, to recall that we were talking about books and not something else: costume jewelry, say, or cutlery. By the time he had arrived at my office, his better items had already been sold off, and the remaining ones—treatises on land reform in Wales, social scientific studies even more dismally specialized than those produced in the United States—were of no possible interest. We chatted pleasantly until, undefeated and indefatigable, he departed to make his next call. After he left I thought of the old joke about the man in the circus whose job is to clean up after the elephants. When asked by a friend why he doesn't quit so undignified a job, the man replies, "What! And leave show business!"

Publishing, if not quite show business, does have something glamorous adhering to it—at least when viewed from the outside. Publishers purvey culture, the sacred thing itself, and so publishing is drenched in romance. One of the marks of a romance industry—journalism, publishing, sports—is that it can get away with paying small salaries in its lower echelons, for the reason that so many people are lined up outside waiting to get in. Further evidence that publishing is viewed as essentially romantic is its treatment in popular culture. I shall never forget a scene from *The Best of Everything*, a movie notable for its rich sappiness, about three young women who arrive in New York fresh out of college to make their careers. One of them (played by the young Hope Lange) takes a job as a lowly secretary in a publishing company. After months of clerical drudgery, her boss (played by the late Joan Crawford with double shoulder pads) gives her a manuscript to read and report on after regular working hours. Shot of Miss Lange pulling chair up to desk in front of sleek new typewriter. Pan in close to memo paper in typewriter, and capture the following words being typed out: "This novel shows careful delineation of character. . . ." Dissolve and cut to senior editor's office, which Miss Lange now occupies as the result of her good taste and trenchant criticism. Ah, the movies!

To return to what is called real life, publishing is indubitably an important part of culture. Even more indubitably, though, it is a business. The combination of business and culture is a subject fit for Evelyn Waugh, for whenever the two get together one can generally count on plenty of laughs to be had all round. (One thinks here, among scores of possible examples, of the salesmen for the *Great Books of the Western World* having to be trained to pronounce the names of the authors: Dos-toy-ev-sky.) The question is, at whose expense are these laughs being registered? Business is concerned with profit; culture is concerned with standards and taste. Although one likes to think that the two can coalesce in purpose, more often they are at cross-purposes. In any standoff competition, culture goes down nearly every time. The wonder is not *why* more good books aren't published, but *how* so many good books are published.

Perhaps the chief reason is that culture is often good business. In contemporary America there is a great hunger for learning, for art, for all that travels under the banner of Culture with a capital C. How else explain those endless lines at the King Tut exhibit as it travels around the country, those crowds at art museums and concerts, the success of book clubs, the elevation to celebrity status of writers and painters and musicians, real and

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fraudulent alike? The appetite for culture is palpably there; at issue is the quality of the diet it is being fed.

As cultural caterers, how good are publishers at their jobs? Well, today they look increasingly as if they were in the fast-food business—so insubstantial and mass produced do their products sometimes seem. "Nowadays everything grows old in a few hours; reputation fades, a work passes away in a moment. Everybody writes; nobody reads seriously." That remark, which appears to have a precise application to our own day, was actually uttered by Chateaubriand in 1836. Yet over the years remarks of this tenor have been made with great intensity and more careful elaboration. In his essay "Civilization," for example, John Stuart Mill wrote:

> The world reads too much and too quickly to read well. When books were few, to get through one was a work of time and labour: what was written with thought was read with thought, and with a desire to extract from it as much of the materials of knowledge as possible. But when almost every person who can spell, can and will write, what is to be done? . . . The world, in consequence, gorges itself with intellectual food, and in order to swallow the more, *bolts* it.

Closer to our own time, Albert Jay Nock, in his *Memoirs of a Superfluous Man*, comments on the rich literary fare of his youth in the 1880s and connects the demise of high-quality publishing with the rising literacy of the American public. The "reason why good literature was more easily accessible then than now," Nock wrote, "is that the portion of literacy in our population was much lower, and publishers were not under such heavy economic pressure to block up the access to good literature with trash." Nock was not interested in turning back to a largely illiterate society, but he was concerned to show the effects of what one might term the extension of the reading franchise to ever greater numbers. Despite the enormous growth both in literacy and in population over the period from his boyhood to his late maturity, Nock noted that the circulation of *Harper's Magazine* was fully a third larger at a time when the country was only half as populous. Other periodicals, too, published thicker issues of a better quality in their earlier years. What brought this about? *Mutatis mutandis*, Nock saw Gresham's law at work in publishing. While the increase in literacy and population brought a widened readership for books, Nock held, along with Mill, that there was no reason to believe it was of necessity a better readership. But the widened audience did mean a widened potential market, and hence a much increased potential for larger profits. Yet, as Nock saw it, there were grave problems.

> This market was unsteady; being based on nothing but irrational fancy, it had its ups and downs, its hot and cold fits of susceptibility or indifference towards this-or-that type of produce, this-or-that lure of sensational appeal. Forecasting such a market became mostly guesswork, and the character of publishing changed considerably in consequence; from a business it became essentially a gamble bolstered by shrewdness in a meretricious mode of salesmanship. Thus the operation of Gresham's law progressively edged publishers farther and farther out of the category of merchants, properly so called, and farther towards the category of gamblers and touts.

Gamblers and touts. Exactly. Except that most publishers tout themselves, talking themselves into what they hope will be commercial winners. ("I know these jokers. If they golf, they sail.") Thus publishers bet on their hunches—and these, like everyone else's hunches, are at least as often wrong as right. One year technology is projected to be the hot subject, so a plethora of books about it are published. Then the hunch is movies, so books about the movies come rolling off the presses. Suddenly publishers decide that ecology is where the action is. Yet the action doesn't remain there for long; it switches to books about the condition of women. Jews read more than any other single group—such are the subtle findings of publishing research into the market—so a glut of books of varying quality aimed, as they say, at "hitting the Jewish market" are churned out. Also to be regularly "hit" is the fabled youth market—"fabled" because no one has ever been able to prove that a youth market for books exists. Then ethnicity becomes topic number one. Touting becomes infectious, spreading from publishers to authors and anthologists. From

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my days as a publisher's editor, I prize a letter from a long-shot artist who wrote to me offering to put together for our firm the following four anthologies: *Growing Up Black, Growing Up Jewish, Growing Up Puerto Rican,* and *Growing Up Gay.*

In the same spirit, I prize the listings of Marboro's sales of remaindered books. These listings can be likened to the green sheet of tips sold at the racetrack, except that the Marboro listing is composed solely of losers, bright publishing ideas that never came off. Reading over the titles, one wonders how anyone was ever able to hypnotize himself into the belief that a market for such books could possibly exist. There is an old publishing joke that the best possible title for a best seller in America would be *Lincoln's Mother's Dog* and the worst title would be *Canada: Sleeping Giant to the North.* But the following titles, taken from a recent Marboro mailing, are no joke; these dogs really do exist: *Skewer Cooking Around the World; The Peter Principle Calendar; Gene Kelly; Moonstruck: An Anthology of Lunar Poetry; Bitching; Car Badges of the World; Robot: The Mechanical Monster and the Movies; Erotic Fantasies; Creative Crepe Cooking; The Cinema of Dirk Bogarde; The Bar Mitzvah Book; The Photography of Rock; Parents' Guide to Allergy in Children; 52 Weeks to a Great New Life; The Other Half of the Egg; Instant Menu Translators; Anyone Can Still Make a Million;* and *Joys of Oral Love.*

These titles are, taken together, mildly amusing, but some of the humor is drained from them when one considers that, in the same Marboro mailing, are also listed remaindered books by George Bernard Shaw, Thomas Mann, Hugo von Hofmannsthal, André Malraux, D. H. Lawrence, Lewis Carroll, Günter Grass, Sholem Aleichem, Aleksandr Solzhenitsyn, and Bertrand Russell. The point is plain: Gresham's point about the bad driving out the good. The fact is that publisher's hunches, often distorted into canards, have real literary consequences. A publishing canard circulated in recent years, for example, has it that books of short stories do not sell. The result is that they are rarely published, and then usually only if their authors have an established reputation. The effect is that writers put less energy, because less hope, into their short stories. Fewer good stories get written. The loser is literature.

Where once there were a number of serious publishers, today the field is filled with that very different thing, "general publishers," firms that bring out good and bad books alike. In part this is owing to the emergence and rise of the university presses, upon which publishers can now shuck off their earlier commitment to publish a more regular diet of serious books. Their assumption is that certain books of serious subject and high quality, but small commercial possibility, are best brought out for a limited audience by university presses. But the problem here is that much good writing—works of belle-lettristic history, poetry, essays—falls between the two stools of commercial and scholarly publishing. (Another untested publishers' belief has it that books of essays do not sell.) The consequences for literature once again are depressing, especially for writers who make up the variegated bulk of lesser literary genius. The situation bodes the demise of the quiet yet distinguished minor literary career. If Max Beerbohm, Ronald Firbank, and Maurice Baring were alive and writing in America today, they would be hard pressed to find publishers willing to bring out their work. So, too, would Edmund Wilson and Lionel Trilling, whose works were preponderantly in essay form.

If readers grow confused by the mad proliferation of book titles in current-day publishing, bookstore owners, by their own admission, are often scarcely less so. A few years ago in *The New Yorker,* Bruce Bliven, Jr. wrote about the workaday life of a commission book salesman in the South and Southwest. Not least of the fascinating revelations in the article is how little time a salesman can spend talking with the owner of a bookstore about any single title—generally, as it turns out, less than a minute. But this is much facilitated, for salesman and store owner alike, if a book has what is known in the trade as a "handle," a sentence or two by which the salesman can succinctly summarize and sell the book. Because neither the salesman nor the owner can find time to read anywhere near all the books he sells, the handle comes in—well, handy. When my own book came out, my editor called, in some desperation, to

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see if we couldn't between us find a handle for it. A sales meeting was coming up and the fate of the book, as of any book, was inextricably involved in selling the salesmen on its salability. We never did find a good handle for my book, a fact to which the box under my desk stands in mute testimony.

Does all this suggest that only the most trashy literature will rise to the top? Not at all. Out of the vast confusion in publishing, anything and everything can rise to the top. A few years ago, Gore Vidal wrote an essay entitled "The Top Ten Sellers" in which he reviewed the novels then on the best-seller list. His intention was to show that best-selling novels were those that embodied the fantasies and idiot preoccupations of Americans, and especially the American romance with the movies. But something more complicated is involved. For a book, fiction or nonfiction, to make the best-seller list is not (as was once thought) a guarantee of its unseriousness. Among contemporary writers, Saul Bellow, Mary McCarthy, Aleksandr Solzhenitsyn, John Cheever, Irving Howe, and Gore Vidal himself have written books that turned out to be best sellers. Among earlier writers, George Santayana, George Orwell, and Richard Wright had books chosen as main selections of the Book-of-the-Month Club.

Can a publisher create a best-seller out of whole cloth (and afterward out of paperback)? This is a subject much in the flux of controversy. My own view is that publishers cannot do it so easily as one might think. For a book to sell in the hundreds of thousands, a sizable market has to exist; and publishers, although they generally do not want for cynicism, do not always know their markets so well as they would like others to believe. The success of *Jonathan Livingston Seagull* could not have been predicted, nor could that of Erich Segal's *Love Story*. Such books cannot be deliberately manufactured or faked; one must truly feel the meretricious emotions that went into their making. The wide sale of some books, however—or at least the chance of their selling widely—is predictable. The author who has struck the gong once figures to strike it a second and third and fourth time, having already built up a following. Books on social problems, preferably written by M.D.'s or psychologists with doctorates, that tell people to do exactly as they want to do anyhow (*Everything You Always Wanted to Know About Sex but Were Afraid to Ask* and *Creative Divorce* are two examples) have an excellent chance of being ridden into the winners' circle. Books of popular psychology that allow for plenty of party chat—such as Gail Sheehy's *Passages*—are always strong contenders, as are thrillers that can be read in a single sitting (*Jaws*).

For more serious books to catch commercial fire, a fortunate concatenation of events must occur. Sometimes a book will appear at precisely the right time, catching the wind of the *Zeitgeist* and taking off into the Valhalla of best-sellerdom. Alex Haley's *Roots* appears to have been such a book. Sometimes, after a long career, a writer, particularly a novelist, will, as if from heaven, get the call. He appears on the cover of *Time* or *Newsweek;* front-page reviews of his book appear everywhere; he becomes the subject of interviews; *People* works him up into a photographic profile. (Such, this past publishing season, seems to have been the case with John Cheever.) Sometimes, though, the same treatment can backfire, as it did two decades ago with James Gould Cozzens, a distinguished writer who got the call—*Time* cover and the rest—with *By Love Possessed,* his least distinguished book. After all the hoopla, the inevitable reaction set in. One attack in particular, a devastation by Dwight Macdonald entitled "By Cozzens Possessed," jolted James Gould Cozzens's reputation so severely that even now, two decades later, it has not yet recovered. Sometimes an excellent novel will nearly expire for want of attention—Walker Percy's first novel, *The Moviegoer,* is a prime example—then at the last moment will be pulled back from the flood of oblivion by winning a significant literary prize. After selling scarcely at all, *The Moviegoer* won in 1961, the year it was published, the then quite prestigious National Book Award.

But how arbitrary it all is! How madcap and how sad! It is not, one suspects, that many good books go unpublished; it is, rather, that they tend to get lost amid the rubbish of so many bad books. Something like 40,000 titles are currently issued in the course of a year in the United States; and the num-

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ber of books intended for general bookstores, excluding textbooks and scholarly works, is now four times greater than the number published twenty-five years ago. The result is that the stock in bookstores is continually changing. The lives of good books are shortened: six or seven months after a book has been published, if it is not a brisk seller, it disappears from the shelves of even well and intelligently stocked bookstores. Either a book makes it fast or it tends not to make it at all. From the standpoint of an author, as Sybille Bedford has recently remarked, publishing today is all serve and volley.

I had an early taste of the effects of the changed publishing atmosphere some thirteen years ago. I was then working on a political magazine that, as a special project, brought out a paperback book about the Soviet Union which we hoped to sell on the mass market. At that time the book cost roughly ten cents a copy to manufacture. Thinking that the more reasonably priced the book was, the better its chances of selling, we priced it at sixty cents a copy. The effect was to kill the book instanter. Why? Because we had not counted on the competition for shelf space. No paperback seller wished to stock so low-priced a book. Why should he, when the same space could carry a paperback priced at $1.25? That was in 1964. Today the same book, which would probably cost forty cents a copy to manufacture, would doubtless have to be priced at $2.95 a copy to have a chance.

Of late it has become convenient to blame the troubles of publishing on conglomerates, which in recent years have bought up more and more independent publishing companies. Representative Morris K. Udall has warned that publishing will soon be studied for evidence of monopolistic concentration. The Authors' Guild has meanwhile urged the government to halt the "sinister process" of mergers in publishing. Publishers owned by conglomerates insist that there is nothing amiss here. "Why shouldn't Gulf & Western be allowed to own a publishing company?" an officer of a publishing company owned by Gulf & Western asked not long ago. "They don't bother us editorially." While ownership by conglomerates doubtless does exert additional pressures for profit, and in the crunch perhaps crucial pressures, I, for one, believe him. I only wish that someone *would* bother publishers editorially.

"At last," runs an ad in *Publishers Weekly*, "the definitive Christian sex manual." The book being advertised is titled *Intended for Pleasure: Sex Techniques and Sexual Fulfillment in Christian Marriage*. Do I sound too much like Pontius Pilate if I ask, "Who are these Christians? Do they have a need for such a book? Or is it only, once again, a publisher trying to hit a fairly large market—Christians who copulate?" "At last," runs an ad in the *New York Times*, "a Mafia wife 'talks'!" Who invited her to talk? The answer, I should guess, is a publisher, or an author hot on the trail of publication, at whose end he espies El Dorado. "Why some people are luckier than others and how you can become one of them," runs an ad for a book entitled *The Luck Factor*. "Get lucky," the ad concludes. "Get *The Luck Factor*. Today." But is it not really the publisher, and the author along with him, who sit with their fingers crossed, themselves hoping to get lucky with this book?

By the time you read this, all three of these books should be on their way to Marboro Country. But perhaps one of them will prove a winner. (Forced to choose, my money would ride on the Christian sex manual.) When they feel called upon to do so, publishers justify such books—"non-books," they are rightly termed, denoting that they have no standing as true books—by saying that they often help pay the way for more distinguished work that, because it is distinguished, does not figure to pay for itself. Not all publishers count on long shots coming in. Some derive substantial profits from publishing textbooks or reference works; others, a steady income from a solid backlist; a very few, from carefully publishing good books. But most publishers, if they can have one or two big winners a season, can afford to stay in the game.

That publishing has increasingly become a game, a heady and enticing game for some of its principal players, is no longer in doubt. Yet it is a game not without victims. Some of these victims are good bookstores, which are gradually being squeezed out by the literary supermarkets such as Kroch's, Waldenbooks,

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and Dalton's; good books, which too often get lost in the shuffle and drowned out in the din; and readers, whose tastes are not cultivated but confused by the profusion of caviar and slops heaped together before them on a single platter.

The solution, easier advised than accomplished, is to publish fewer books. How might this be done? Should authors be offered grants for *not* writing books as farmers are offered subsidies for letting their fields lie fallow? Or what about publishing books that go directly from the printer to the remainder stores, thereby saving the expense of selling and handling in regular bookstores? Or should publishers invoke standards instead of believing in canards and following hunches, agreeing to publish only those books that demonstrate genuine literary talent or a thoughtful approach to serious intellectual and social questions? That this last possibility seems quite as unlikely as the other two is a measure of how far the game of publishing has gotten out of hand.

Actors' Equity

DAVID BERGMAN

I never could learn my lines.
I knew approximately what I was supposed to say,
but I was never letter perfect.
Each time the curtain rose,
it rose on a different play;
and the others, not knowing whether
I'd give them their cues, were forced to listen.
At first there was consternation.
But they were more involved when they listened
and there was excitement.
They performed better not knowing what to expect,
and gained a more intimate knowledge of their characters.
They praised me:
I had saved a dull and hollow play
from mechanical and thoughtless reproduction.
They had learned from each performance.
They admired my technique, my freshness, my versatility.
They wished me luck in finding another job,
and regretted replacing me in the middle of the run.
The director told me he had a friend who taught mime,
and insisted on writing his name
on the back of an envelope.
He wouldn't let me thank him.
"Don't say a word," he implored,
"it's enough if I can help."

DAVID BERGMAN teaches English at Towson State University. His poetry has appeared in the *Paris Review* and other journals.

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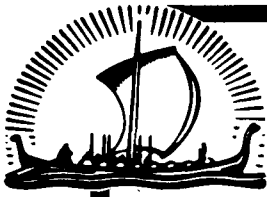

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One Hundred Metronomes

EDWARD T. CONE

ANDREW WILLIAMS WAS WAITING FOR ME when I arrived at my office yesterday morning. Andrew is one of our most promising graduate students. Talented as a composer, he is also a brilliant pianist who can read contemporary scores with enviable ease. As a result, his knowledge of musical literature is wide and will one day, I hope, be deep. In a department where good students are normally classified either as being "very musical" or as having "a good mind," Andrew qualifies in both respects.

He is not the type to drop in for casual conversation: if he is waiting for me, he wants something. "Well, Andrew, what's up?" I asked as I turned the key.

"I need your help," was the reply. Entering and sitting down, he came to the point immediately. "I want the department to put on Ligeti's 'Poème symphonique,' and you're the only member of the concert committee who might be willing to support the proposal."

I knew he meant this as a compliment, but it was one I did not wish to accept. I tried to evade the issue: "Shouldn't you go directly to the university orchestra? You know that our committee doesn't control their concerts."

He gave me a smugly scornful look. "The 'Poème symphonique' isn't for orchestra. It's a composition for one hundred metronomes—the old pendulum kind. You wind them all up and let them tick away until they all run down."

"Oh, that one!" I remembered having read about the work, although I had not recognized its pretentious title. "Where are you going to get a hundred old-fashioned metronomes?"

"I don't know; that's one reason I need the department's help. After all, that's the only expense of the performance. My friends and I can easily wind them up and set them going." He grinned. "It's all right if you can't find a hundred: Ligeti has said that ninety-nine will do."

"Well," I said, "I can see that your event would be a great advertisement for clockwork metronomes, provided one can still buy them. As a

EDWARD T. CONE, professor of music at Princeton University, is a composer, pianist, and critic. His book, *The Composer's Voice*, won a Deems Taylor Award in 1975.

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matter of fact, I much prefer them. Have you ever pulled the handle off an electronic one and tried to reset it? . . . But that's by the way. We haven't approached the basic question. Is it music? Why should our department sponsor it?"

"It has been accepted as music. It has been performed in concert at Stanford University, among other places."

"And anything that is performed in a so-called concert is music?"

By way of reply he pulled a clipping from his pocket and handed it to me. It was "The Zealots of Zurich," Richard Ellmann's review of Tom Stoppard's *Travesties* in the *Times Literary Supplement*. He pointed to an underlined quotation from Tristan Tzara—Stoppard's Tzara, that is: "Nowadays, an artist is someone who makes art mean the thing he does."

"Ligeti, you see, has made music mean one hundred metronomes. So he is a musician and the metronomes make music."

"And I suppose that if I refuse to support you, I am taking the fuddy-duddy role of John Carr. You will have noticed that Ellmann approves of Carr's response to Tzara: 'An artist is someone who is gifted in some way that enables him to do something more or less well which can only be done badly or not at all by someone who is not thus gifted.' Well, I'll go along with that—at least for present purposes. I have no reason to believe that Ligeti possesses any special qualifications as a metronome setter. You or I could do just as well, without paying royalties to him. (There's an expense you didn't mention!) Besides, Raymond Chandler—or one of his characters—was everlastingly right: 'There is no success where there is no possibility of failure, no art without the resistance of the medium.' "

Andrew didn't respond to this. He was obviously disappointed, but he made one more attempt. "Will you think it over? I'll come back tomorrow, and perhaps you'll be more open-minded." I promised that I would try.

The promise I made was for my own sake as well as his. For some years now I have been putting off the attempt to organize my own thoughts about the problems raised by the appearance of such works as the Ligeti on the artistic scene—works that adhere to no conventions of medium, organization, or expression and yet claim the honorific designation of art. Over the years, I have kept clippings from newspapers and magazines, programs, notes on exhibitions and performances I have attended—a random collection of items that have struck me as relevant to the subject. Last night I took out the file and reviewed it. It made melancholy reading. What follows is a small but representative sample.

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At the Venice Biennale of 1972 a "keynote" exhibit consisted of ten thousand hatching butterfly eggs in the Piazza San Marco. (Very few actually hatched, I understand.) Another exhibit at the same show included, in addition to a dancing couple (live) and some skeletons (dead), an apparent Mongoloid sitting in a chair. (True, his presence did occasion some protest, and he was removed from the ensemble.) In the same year, Christo (he uses no surname) succeeded in stretching an orange curtain across Rifle Gap, Colorado. Since then he has covered the cove at King's Beach, Rhode Island, with 150,000 square feet of polypropylene fabric.

John Cage, the composer who is perhaps best known for his four minutes and thirty-three seconds of silence, has produced other music by recording random sounds in New York City. Indeed, there appears to be a vogue for environmental noises of this kind, for one can buy records that reproduce the "soundscape" of one's favorite cities. Douglas Huebler's "Location Piece No. 7" depends on the behavior of snow, which is allowed to melt and then to evaporate. Even more vivid reference to the environment was made by some work of Jock Reynolds that I saw in San Francisco in 1972. It included, among other oddities, one box of live chicks and dead cornstalks, and another full of live mice with grain bags.

Some art is achieved through personal mutilation. Chris Burden, possibly the most accomplished member of this school, on one occasion had himself shot in the arm; on another he was crucified on a Volkswagen. Vito Acconci gave his own body a thorough biting. Such works are memorialized in high-priced photographs.

Only last year the Tate Gallery raised a storm by the purchase of a work by Carl Andre. It consisted of 120 standard bricks, arranged, according to instructions, in a rectangle ten bricks long by six wide by two high. John Russell, writing approvingly of the Tate's purchase, praised "the frank and unambiguous way in which the materials are assembled" and "the way in which a specifically American gift for plain statement has been applied to situations that in ordinary life are confused and contradictory." Calling on Bishop Butler for support, he added: "An Andre 'is what it is,' as a 17th-century [*sic*] philosopher said, 'and not another thing.' "

Yes, but is what it is a work of art? In view of the examples just cited, apparently art is whatever an artist produces with the intention of producing art. But that definition merely substitutes one problem for another, for how do we recognize the artist except by his production of what we accept as art? Or are we required to call an artist anyone who claims to be one? Perhaps we should ask the critic to help us: it is his task to identify art and artist, and they are whatever and whoever he says

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they are. But immediately an analogous difficulty arises: whence does the critic derive his authority? How do we recognize the dependable critic? Obviously by his accuracy in the identification of art and artist. It is the persistence of this circularity that forces one to appreciate not only the cleverness but also the timeliness of the standard implied by Stoppard's Tzara. The circularity of his definition accurately summarizes our present situation. The artist is one who makes us accept what he does as art. I would go further and apply the same kind of definition to the critic: he is one who makes us accept his identification of art. From our point of view as public, the result is the same: art is whatever we can be made to accept as such. And if press coverage, museum exhibition, and private purchase are any criteria for public acceptance, then Christo's draperies, Burden's wounds, and Andre's bricks are works of art—along with Ligeti's metronomes.

If Stoppard's implied analysis is relevant to the contemporary situation, it is because Carr's insistence on the connection of art with objective standards of workmanship has today been replaced by Tzara's exaltation of an artistic status achieved by the manipulation of public opinion. Carr invokes a criterion of excellence to define what for Tzara is a Humpty-Dumpty word that means whatever we can be persuaded it means. How did this come about?

In one sense Carr and Tzara are not talking about the same thing at all. Carr is referring to the original signification of the word "art": art with a small *a*, as used in the phrase "the art of . . . ." It can refer to any activity requiring knowledge and skill. The artist is essentially a superior artisan. He is, as Carr says, unusually gifted, but his gift is demonstrated by his technique in the practice of a craft. Without technique, no craft; without craft, no art. This use of the word is less common now than formerly, but it survives, even colloquially, as a term of praise: "She is an artist with her needle."

That, however, is not the meaning of the word that Tzara is glossing. He is trying to debunk the concept of Art with a capital A, as in the phrase "Work of Art." The artist he presupposes as a foil for his own type is the Fine Artist—the painter, the sculptor, the architect, the composer, or the writer practicing one of the traditional Fine Arts. Today we should no doubt include the choreographer, the photographer, and the cinematographer as well. The title has become immensely honorific. Poets are hailed as lawgivers, painters as visionaries, composers as prophets. In the eyes of many, the Artist enjoys the highest possible status, both intellectual and social.

I have defined Art ostensively because it is difficult to find any gener-

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ally acceptable formulation. What all of these manifestations have in common can be stated only in abstract terms—for example, Art is the aesthetically controlled organization of a visual, auditory, or verbal medium. But such a definition makes no attempt to deal with the crucial question: What is the purpose of Art? Here is where aesthetic theories proliferate—Art as play, Art as magic, Art as entertainment, Art as formal design, Art as emotional expression. That is why Tzara is able to get away with his sally. Almost anything can be paraded as the aesthetic organization of a medium so long as its purpose remains vague.

Tzara's definition could not be applied to the butcher, the baker, or the candlestick maker. Everybody knows what a candlestick is for; so a candlestick maker would find it difficult to purvey an object that he proclaimed to be one unless it could actually hold a candle. Suppose he makes an object that looks somewhat like a candlestick. You think that it is one until you try to put a candle in it; then you discover that it is made of paper and collapses immediately. You would rightly protest that what he has made is not a candlestick at all but an imitation of one. A candlestick, you say, performs a certain function. Unless a given object can support a candle, it cannot be a candlestick no matter how much it looks like one. Conversely, no matter how much an object may appear to differ from a conventional candlestick, it can be considered a candlestick if it can conveniently and effectively be made to support a candle.

But what is Art supposed to do? And how can one be sure of recognizing it—of distinguishing the real from the spurious, of spotting the unconventional but genuine—unless one knows its purpose? Stoppard, in the play, offers no explicit answers to these questions. What he does instead is to set on the stage a representative example of the Artist—specifically the type of Artist who, by his work, forces us to rethink our own answers. To be sure, Stoppard's James Joyce is a parody; yet he retains something of the dignity of the original. It is he, not Carr's craftsman, whom Tzara caricatures—not the candlestick maker whose superior gifts enable him to make a better candlestick, but the writer whose creative imagination stretches a familiar form to the point where we ask, "Is it Art? And if it is, what makes it Art?"

The emergence of figures like Joyce attests to a long historical evolution transforming art into Art, "the arts of . . ." into "The Arts" (that is, the Fine Arts), the *objet d'art* into the Work of Art, the artist as craftsman into the Artist as Genius. Today, looking back over the span of the ages, we point out great creative periods of the past; we find Works of Art in every period and every culture. Yet when we do so, we are applying concepts and standards of comparatively recent origin. In English, according to the *Oxford English Dictionary*, the use of "art" to

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mean "Art" is a seventeenth- and eighteenth-century development; indeed, as its first example of "the Arts" in the modern sense, the dictionary offers a quotation from Sir Joshua Reynolds's *Discourses on Art*. The word "artist," in any sense, is also comparatively new; it first appeared in the late sixteenth century. And what of artistic genius? The ancient Greek poets may have been inspired, but their inspiration was of divine or demonic origin. The concept of human genius, in the sense of exceptional intellectual or artistic endowment, was—again according to the *OED*—a product of the eighteenth century.

So long as each of the accepted media of artistic expression retained a clear tradition of technical excellence, the concept of Art as Fine Art contained the concept of art as craft. The Artist, no matter how visionary, was expected to be a craftsman, and his products were required to pass the test of acceptable workmanship. Only then could he aspire to be acknowledged as a creative genius, and even as such he was still *il miglior fabbro*. It was the function of Artistic convention to define and confirm the tradition: to delimit the several Arts and to establish standards for each. Convention does not, as is so often feared, preclude change: it ensures that change will occur in an orderly manner and at a moderate speed, since an innovation, to be successful, must prove its viability as a new or modified convention. Thus modality in music yielded to tonality; High Renaissance architecture to mannerism and the baroque; realistic painting to impressionism and postimpressionism. Thus, too, did nineteenth-century novelistic techniques yield to those of *Ulysses*. Joyce was still within the tradition of *il miglior fabbro*.

We can see that now—just as we can see how fauvism and cubism derived from more familiar representational styles, and how atonality and twelve-tone methods grew out of post-Wagnerian chromaticism. Some of us, at least, can see that, although there are still many for whom Matisse's paintings remain daubs, Schoenberg's music dissonant chaos, and *Ulysses* nonsense. Certainly that is the way they were viewed by most observers when they first appeared. And even those who hailed them as important Works of Art were understandably more excited by their obvious innovative qualities than impressed by their fundamental adherence to tradition.

Tzara's quip, then, is double-edged, and therein lies its bite. Much that we now accept as Art, even as tradition-oriented Art, had to make its way by dint of the Artist's personal forcefulness, aided by the rhetoric of friendly critics—in other words, by his ability to compel acceptance of what he produced as Art. On the other hand, a public long conditioned by that situation has come to tolerate anything and everything that is put forth in the name of Art. It is afraid above all of failing to recognize

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genius. Yet it has no way of distinguishing between the real Artist and the well-intentioned dabbler, and it can guard against neither what R. P. Blackmur used to call the "sincere charlatan" nor the out-and-out fraud. There are no longer any conventions to serve as guidelines. It is not just that the word "conventional" has become a term of reproach. More serious is the way in which mode succeeds mode with bewildering rapidity: there is never sufficient time for a new set of conventions—let alone a new style—to get established.

Thus a possibility suggested by the careers of such seminal figures as Joyce has become an actuality: the Artist *is* the man who can make us accept what he does as Art. Art *is* whatever he convinces us it is.

Why do I find this situation depressing rather than exhilarating? Or if not exhilarating, hilarious? The current manifestations would be exhilarating if they betokened a step toward a new style of expression, but I see no evidence for such progress. They might be hilarious if they were presented in a spirit of fun or even of ridicule, but—unlike the offerings of Stoppard's Tzara and of his historical original—they are serious to the point of solemnity.

A new style may apply a new set of standards to the organization of a familiar medium, or it may attempt to discover the standards required by the definition of a new medium. But in the works I have been describing—whether minimalist, conceptualist, environmentalist, or whatever—media and standards are peculiarly elusive. The definition of the medium of a Work of Art is not a matter of mere academic interest; it is essential to its creation and its appreciation. Unless the Artist has both precise understanding and complete control of his medium, he cannot assure his own success or even realize whether he has achieved it. What, under such circumstances, becomes of that "resistance" which, for Chandler, is the crucial contribution of the medium to the very viability of the Work of Art?

The observer, too, must recognize the medium of a work, else he cannot know how to take it. He may not be sure whether what he is confronting is supposed to be a Work of Art. Even when he has good reason to suspect that it is, he may not know in what sense to take it as such. Is César (Baldaccini) creating Works of Art when he compresses automobiles into solid blocks? Are they sculptures? True, "sculpture" can mean almost anything now. Roy Bongartz tells us that Roger Cutforth's photographs are not meant to be regarded as photographs, "but as the graphic representations of ideas or 'sculptures'. . . . There is a snapshot of a hand holding a snapshot, for instance, and it is to be bought and judged not as photography but as a transcendental form."

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Sol LeWitt's "The Location of Points: 2 Wall Drawings" does just what it promises: it determines the positions of certain points on a wall. These are ascertained by carefully following two sets of directions, one very simple and one highly complicated; the points, once located, are designated by small crosses. But just what is the "drawing"? When the work was displayed at the Princeton University Art Museum in 1974, it was constructed by a team that included the Artist, but that seems to have been merely coincidental. If one *buys* the drawing one obtains only the set of instructions. What, then, is LeWitt's medium?

Nick Bentley's show of real animal skins together with films of dead animals on a highway was certainly not to be construed as an exercise in either taxidermy or cinematics; possibly the word "skinflicks" was coined to describe just this genre. But how are we to take the audiotapes that Vito Acconci (the self-masticator) displayed recently in New York, not only to the devotees of an art gallery but also to the casual clientele of a hotel? Consisting of self-revelatory monologues by the Artist, they were intended to constitute neither a fragment of autobiography nor a television drama, but a Work of Art in some special, undefined sense.

In a word—in Aquinas's word—whatever these works may possess of *integritas* and *consonantia*, they lack *claritas*. According to Jacques Maritain, the Schoolmen "described the radiance or clarity inherent in beauty as *splendor formae*, the splendor of the form. . . ." Applying this concept to Art, I take it to mean—at the very least—that Works of Art should proclaim themselves, that their forms should be self-evident. But the works I have been citing do not proclaim themselves; they rely on verbal explanation, by the Artists or by their supporters, to establish their status and significance as Works of Art. Some observers apparently glory in this situation. John Russell, discussing Andre's bricks, writes: "His work . . . has what was defined not long ago as the prime characteristic of good new art: that it makes people wonder at first if it is art at all." Under such conditions, it is no wonder that these works fail to reveal the standards of success by which they are to be measured. If the medium itself is ill defined, how can one tell whether it has been well organized?

One turns in vain to the critics for help. Instead of aiming at clarification, they try to invest every object of their interest with an aura of profundity. Thus Sam Hunter invokes religious emotion, finding Christo's Rhode Island project "mysteriously affecting and absorbing with its dominant water imagery and symbolism, rather like some collective baptismal rite." In a more rigorous spirit, Rosalind Krauss calls on concepts derived from such diverse thinkers as Wittgenstein and Husserl. Both logical analysis and phenomenological insight contribute to her defense of Sol LeWitt's wall drawings: "One might say that they

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stand for the predicates of any proposition, which once made (or imagined) must be able to achieve itself physically. . . . The significance of the wall as a medium for line or drawing is, then, that it becomes the ground of a refusal to separate idea from existence."

John Russell, as we have seen, praises Andre's autochthonous ability to overcome the confusions and contradictions associated with ordinary tasks like bricklaying. He then goes on to invoke the comfortingly profound, philosophically endorsed notion that every work is unique and therefore an unexceptionable example of itself. But *everything* is what it is, and not something else: that was Butler's point. Admirable though the Andre brick construction may be, it is odd to praise it for a characteristic it shares with every other object in the universe. Or are Artists now running in a caucus race in which everybody wins and everybody receives prizes?

The real dangers of fuzzy media and blurred standards lie in their effects on immature would-be Artists, who may be unsure of any vocation beyond a vague desire or intention to become an Artist. It was disturbing enough some years ago when leading Art schools and universities began to offer courses in "Design"—design, that is, *tout court*, divorced from any specific medium and hence from any craft. It is downright disheartening to find that now—in some educational circles, at least—even the concept of design has been abandoned. It is hard to guess exactly what remains to be taught, but it is perhaps exemplified by the work of an Art student at a leading university who, as part of his offering in support of his candidacy for an M.F.A., exhibited a basket containing a number of paper towels, each signed by a museum curator and later used by the student to dry his hands.

At this point one may wonder why, despite the solemnity of the Artists, the appropriate reaction of the observer is not one of hilarity. One reason was stated very audibly by an old friend of mine as he stalked out of a recital in which David Tudor was playing an interminably aimless piece of avant-garde piano music: "This joke has gone on long enough." More seriously, though, many of these works exemplify a pervasive confusion between art and reality that is no laughing matter. Such errors of identification seldom are. Certainly they were not a laughing matter to the gladiatorial victims of the ancient Roman confusion between life and sport—or to the casualties in a recent bloody war that an American president seemed to think of in terms of a football game as he cheered the home team to victory. Most of our leaders, however, as standard official language indicates, tend to see public events as Works of Art, specifically as dramatic or cinematic: not as matters of life and death but as scenarios. It should not surprise us that

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they come to think of human beings as actors or even as puppets, whose destinies they are able to control.

The same dangerous confusion can be observed in other fields. Critics try to make heroes of Sade and Genêt—not only as Artists, but also as men. Crimes like the murders attributed to the Manson cult are committed for largely symbolic reasons. They have a certain Artistic element about them that justifies them in some eyes. And the terroristic methods of guerrilla kidnappers and killers are defended as somehow poetically right.

It therefore occasions no astonishment, although some dismay, to find that many who aspire to be or are accepted as Artists contribute to the general obfuscation. Taking advantage of the prevailing indulgent toleration, they try to extend the limits of what is acceptable as Art until it includes everything. Art has become, in other words, indistinguishable from reality itself.

Some may rejoice in this development, and indeed its formulation has a fine, free resonance about it: there are no boundaries between Art and Life! Thus many audiences seem to relish being vilified and even manhandled by the actors in certain advanced theatrical productions. Others enjoy crawling through Alice Aycock's "Simple Network of Underground Wells and Tunnels," perhaps with the experiences of another Alice in mind. And those who take part in one of Christo's productions, according to Sam Hunter, experience "deep satisfactions . . . of an almost primitive and ritualistic character." Indeed, a Christo project is a celebration of the loss of boundaries, for each one is "as much a state of mind as an art object."

On the other hand, one might ask John Cage, who apparently hears music everywhere, whether an automobile horn conveys the same message to him if it is on his tape or in the street. His life might depend on the answer. Chris Burden almost lost his when, as part of an artistic production, he nearly electrocuted himself. And what of Rudolf Schwarzkogler, who, according to Roy Bongartz, "began cutting off his penis bit by bit until he finally sliced himself to a hero's death at 29"? These are ludicrous or pathetic examples, to be sure, but they do illustrate the perils of forgetting the crucial differences between Art and reality. In his everyday life as a person, an Artist, like everyone else, is a *doer;* the results are *acts.* As an Artist, he is a *maker;* he produces *works.* True, an act can be viewed aesthetically, but it is first of all a moral event. A work can be viewed morally, but it is primarily an aesthetic object. Without some such distinction we live in a dream world—or rather a nightmare world, in which, like the players at Elsinore, we do but jest, poison in jest.

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What is to be done? How are we to draw the line between Art and non-Art, to delimit media, to establish or confirm standards, without at the same time inhibiting experimentation, preventing innovation, and in general discouraging creativity?

My solution is a simple one. Let us put on the list of forbidden words and phrases—along with "finalize," "point in time," "charisma," and "contact" as a verb—the locutions "Art," "Artist," and "Work of Art." Naturally the prohibition cannot be absolute. The great museums of New York and Boston cannot go nameless, nor can countless university departments. In historical contexts the terms may of course be preserved; my proposal concerns contemporary usage. But here we should be mercilessly strict: we must not refer to any living persons as Artists, or to what they produce as Art. But then what shall we call them? Just whatever they are.

This restriction would not be so difficult as it might appear. Consider once more our friend the candlestick maker. If he was a good craftsman of the seventeenth or eighteenth century, some of his candlesticks, by reason of their sculptural design, perhaps qualified as Works of Art—minor but genuine. But if you had asked him at any point what his profession was and what he was doing, he would have replied, "I am a candlestick maker and I am making candlesticks." No doubt he would have been pleased to think that his candlesticks would one day be exhibited in an Art museum, but it would have been quite possible for him to go to his grave without ever considering himself an Artist or evoking the concept of Art.

The examples need not be restricted to the minor arts. For centuries, architects were concerned less about the Artistic status of their buildings than about their stability and durability. A professional painter was one who produced, on commission, frescoes, or portraits, or decorative panels. Some of the opera composers we revere turned out their works one after another in answer to a demand for entertainment. Everyone knew what a building was, or a picture, or an opera. Almost anyone could tell when the building was stable and well proportioned, when the picture was a good likeness, pleasing in color and composition, or when the opera was tuneful and spectacular. Each product had its function and was judged first of all with regard to its fulfillment of that function—what Artistic merit it might have derived from its elegant solution of that primary problem.

In our own day we have seen the emergence of Artistic values from new functional media. Photography was developed as a means of recording appearances; cinema as a vehicle for public entertainment. Only later did theorists of Art begin to take them seriously, defining the

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aesthetic aspects of each and the Artistic standards thus implied.

Sometimes a new medium, or quasi medium, may arise as an expansion or an adjunct of one already established. Thus the admission of nonrepresentational subject matter extends the possibilities of painting, while the recognition of collage as a related method enlarges our concept of picture making in general. That is an example of how conventions evolve under the pressure of creative development. A picture has become not necessarily a painting or drawing of something, but rather the organization of a defined surface through line, form, and color. Of course many picture makers try to produce Art—many but by no means all. What all picture makers *are* concerned with, however, is the making of pictures.

Craftsmen such as these have always been able to talk freely and intelligently about what they are doing without recourse to the word Art or its derivatives. Today those locutions are not only unnecessary, they are misleading. Their main purpose seems to be to claim or to confer status. But the status of Artist is one that should never be claimed. And it should be conferred only judiciously, after deliberation, preferably at a safe temporal distance. Otherwise it may have to be withdrawn.

In the meantime, let everyone freely continue to enjoy his own activity—but under its exact description. One whose work clearly fits a familiar category such as painting or sculpture may of course assign it the traditional name. But one whose output cannot be conventionally classified must find some other designation for it, preferably one that explains its function precisely. Under such a program, the problem of the definition of medium should disappear. Thus if Douglas Huebler wishes to study the effects of heat on snow in his "Location Piece No. 7," fine—providing he presents the results neither as sculpture nor as photography but as a demonstration of certain elementary physical principles. César's compressed automobiles will be seen as exercises in demolition. And when a LeWitt "wall drawing" consists of a series of directions for producing an accurate construction, it must be presented as an exercise in geometry.

Each of these newly defined media, moreover, imports its own standards: clarity of presentation for the Huebler, compactness for the César, mathematical elegance for the LeWitt. (This criterion might, I fear, result in low marks for LeWitt: one of his sets of instructions is couched in a sentence—or partial sentence—of more than four hundred words.)

Finally, the problem of Art versus reality will be resolved. As soon as Acconci's bites are denied the forbidden appellation of Art, they will be seen for what they are: real bites. They must be assessed as such: for example, did they hurt?

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Students will, of course, continue to obtain academic recognition for their craftsmanship in drawing and painting, but degrees in abstractions like "Creative Arts" will no longer be granted. Anyone who expects credit for a container filled with used paper towels will have to find a department that is willing to go on record as giving advanced degrees in wastebasket filling.

What I am recommending, in short, is a wholehearted adoption of Bishop Butler's attitude. Since each thing is itself and not something else, let us insist that it be called exactly what it is and treated as what it is, without recourse to the vague catchall something else, "Work of Art."

When Andrew reappeared at my office this morning I was well prepared. I handed him several typewritten pages, the substance of which you have just read. He looked them over. "This is great!" he exclaimed. "Just what we've always been saying about those freaks in the art department, if you'll forgive the expression. You didn't really think I took the Tzara position seriously, did you? You've put the matter very clearly. May I keep this copy?"

My regard for Andrew rose. "It's only a draft, but you shall have a copy if I ever put it into shape."

"So what about it?" he asked.

"So what about what?"

"So what about the Ligeti?"

"I should think that would be obvious. Under what designation do his metronomes fall? Entropy, perhaps? Certainly not music!"

His face showed his disgust. "Why not? I thought you had seen the light when you talked about expanded media. Don't you see, we're way ahead of the Art crowd. We realize that music can't include just anything at all you feel like doing. We leave that kind of nonsense to *Source*. I grant you, anything goes there! You should look at their eleventh issue; you'd find plenty to add to your collection. Why, they seem to accept Christo's performances as music! Or perhaps you'd prefer Nam June Paik's 'Young Penis Symphony,' which is performed by ten young men who expose themselves."

"What do they perform?"

"That *is* the performance. But seriously—real composers have a medium and respect it. We're convinced, though, that the old conventions are too narrow. Music has come to mean any kind of sound, organized and listened to for its own sake. That's what Varèse meant when he began referring to his later compositions as organized sound rather than as music. That's the point of those soundscape recordings, too. Sure, you can hear them as a slice of real life, but you can also listen

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to them as a series of abstract sounds. That's what Cage is getting at: anything can be made into music if you listen to it that way, just as a piece of driftwood can be made into Art if you put it on your mantelpiece. I'm not talking about value. I'm not saying that the soundscapes are good music: their organization is minimal. But I am saying that they deserve a hearing as music before one makes a judgment."

I admit that I was impressed. The young man was obviously sincere, and his argument had some validity. My net had not been fine enough, and Ligeti had slipped through the holes. Then I saw my chance and took it. "You say that the medium of music must now be considered as sound in general, and not exclusively or even primarily as tone. All right. Let's grant that. But you forget that the medium of music is also, and perhaps preeminently, something else: time. Whatever you organize—tone, sound, noise—the organization has to take place in real time. And that is one commodity none of us has very much of. You may not realize that yet, but believe me, it is foolhardy to waste it.

"For that matter," I continued, warming to my subject, "all Art is Time Art. You can't look at, listen to, think about, taste, smell, or touch anything instantaneously. That's my true quarrel with those others. It doesn't really matter that they want status—who doesn't? And it's of only superficial concern to me if occasionally a charlatan is hailed as a genius. It won't last. What does matter is this: anyone who, as an Artist, claims my attention tacitly promises me that my time will not be wasted—more than that, that my time will be well spent. And I don't think these people are keeping their implied promise.

"Neither, I suspect, do you, and I think I can prove it. Now, I'm willing to go along with you and support your programming the Ligeti, but only on one condition."

He brightened. "Fine! What must I do?"

"You, and any of your friends who are involved in this show, must put on a complete dress rehearsal of the 'Poème'; and in order to make sure that all the metronomes function properly and can be heard in the hall, you must promise me to sit through the rehearsal to the end."

His face fell. "You can't be serious! Do you know how long the whole piece may take? About two hours! Even longer if you have some especially vigorous metronomes. I doubt whether I can persuade anyone to stay through the whole performance, let alone a rehearsal. *I* certainly don't intend to. It's the idea of the piece that's interesting, not its execution."

"Exactly." I knew I had won. "Whatever you call the 'Poème'—music, organized sound, just noise—it takes time to perform it, and its idea just isn't interesting enough to sustain the amount of time it takes.

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No doubt the work is highly symbolic: the universe, we are told, is running out of energy and will one day run down. But why waste what energy remains by celebrating that gloomy eventuality? True, many people today, especially young people, have an acute sense of living in the shadow of imminent extinction; but in a sense everyone, everywhere, has always lived that way. Why shouldn't we make the best possible use of the little time that remains to us? That's the real trouble with the 'Poème symphonique,' with the endurance tests of the Glass-Reich-Riley school, and with the various objects and events I've been deploring: they demand valuable time that we could use in better ways."

"You're right," he admitted, shaking his head sadly. "We could be listening to Mozart."

Terminal

LINDA PASTAN

For every departure
there is an arrival.
It is the law of the axe
whose handle was a tree.
It is the secret
the fire caves in upon
whose smoke disappears
along its own trail.
The leaves push off again—
a whole fleet of small sails
and no one knows where they land.
Children wave from train windows
their years growing heavy
on their backs.
But somewhere a cloud is forming
that will flower here in petals of snow,
and light from a star
that started towards us
a million years ago
arrives at last.

● LINDA PASTAN's new book of poetry, *The Five Stages of Grief*, will be published in 1978.

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Insomnia

JEAN BURDEN

It is like no other waking.
The darkness thins.
I turn in it, slowly,
like a seal rolling over in its watery bed.
What appointment do I keep,
night after night,
that I must surface
from my sleep
to this unwelcome, arid
place?

A white night, they call it—
well named as lime,
as tusks of beast or feathers
of a gull;
O white as salt,
as burnished skull.

It is a time
I lose by day,
a fifth season
I neither want
nor choose.
Stranded on a reef, I take
from the bleached night
what sustenance I can.

I count invisible shells,
I stalk the dead—
father, mother, lover, child—

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who stand around me
on this shore,
their faces drawn in chalk.
The world strikes four.

Foam thickens to opal,
opal to emerald.
The tide crawls inland.
I exhale the stars,
turn upside down,
and in the green wake of waking
drown.

● JEAN BURDEN is the author of *Naked as the Glass*, *Journey Toward Poetry*, and an anthology, *A Celebration of Cats*, as well as five books about animal welfare. She has been poetry editor of *Yankee* since 1955.

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God and Norman Bloom

CARL SAGAN

[The French encyclopedist] Diderot paid a visit to the Russian Court at the invitation of the Empress. He conversed very freely, and gave the younger members of the Court circle a good deal of lively atheism. The Empress was much amused, but some of her councillors suggested that it might be desirable to check these expositions of doctrine. The Empress did not like to put a direct muzzle on her guest's tongue, so the following plot was contrived. Diderot was informed that a learned mathematician was in possession of an algebraical demonstration of the existence of God, and would give it him before all the Court, if he desired to hear it. Diderot gladly consented: though the name of the mathematician is not given, it was Euler. He advanced towards Diderot, and said gravely, and in a tone of perfect conviction: Monsieur, $(a + b^n)/n = x$, donc Dieu existe; répondez! *[Sir, $(a + b^n)/n = x$. Therefore God exists; reply!] Diderot, to whom algebra was Hebrew, was embarrassed and disconcerted; while peals of laughter arose on all sides. He asked permission to return to France at once, which was granted.*

—Augustus De Morgan, *A Budget of Paradoxes* (1872)

THROUGHOUT HUMAN HISTORY there have been attempts to contrive rational arguments to convince skeptics of the existence of a God or gods. But most theologians have held that the ultimate reality of divine beings is a matter for faith alone and is inaccessible to rational endeavor. Saint Anselm argued that since we can imagine a perfect being he must exist—because he would not be perfect without the added perfection of existence. This so-called ontological argument was promptly attacked on two grounds: (1) *can* we imagine a completely perfect being, and (2) *is* it obvious that perfection is augmented by existence? To the modern ear such pious arguments seem to be about words and definitions rather than about external reality.

More familiar is the argument from design, an approach that penetrates deeply into issues of fundamental scientific concern. This argument was admirably summarized by David Hume:

> Look round the world: contemplate the whole and every part of it; you will find it to be nothing but one great machine, subdivided into an infinite number of lesser machines. . . . All these various machines, even their most minute parts,

CARL SAGAN is David Duncan Professor of Astronomy and Space Sciences and director of the Laboratory for Planetary Studies at Cornell University. His most recent book is *The Dragons of Eden: Speculations on the Evolution of Human Intelligence.*

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are adjusted to each other with an accuracy which ravishes into admiration all men who have ever contemplated them. The curious adapting of means to ends, throughout all nature, resembles exactly, though it much exceeds, the production of human contrivance; of human design, thought, wisdom, and intelligence. Since therefore the effects resemble each other, we are led to infer, by all the rules of analogy, that the causes also resemble; and that the Author or nature is somewhat similar to the mind of man; though possessed of much larger faculties proportioned to the grandeur of the work which he has executed.

Hume then goes on to subject this argument, as did Immanuel Kant after him, to a devastating and compelling attack; notwithstanding which the argument from design continued to be immensely popular—as, for example, in the works of William Paley—through the early nineteenth century. Not until the development of modern science, most particularly the brilliant formulation of the theory of evolution by natural selection put forth by both Charles Darwin and Alfred Russel Wallace in 1859, were these arguments fatally undermined.

There can, of course, be no disproof of the existence of God, particularly a sufficiently subtle God. But it is a kindness neither to science nor to religion to leave unchallenged inadequate arguments for the existence of God. Moreover, debates on such questions are good fun and, at the very least, hone the mind for useful work. Not much of this sort of disputation is in evidence today, perhaps because new arguments for the existence of God that can be understood at all are exceedingly rare. One recent and modern version of the argument from design was kindly sent to me by its author, perhaps to secure constructive criticism.

Norman Bloom is a contemporary American who, not incidentally, believes himself to be the Second Coming of Jesus Christ. Mr. Bloom has been a fixture at some scientific meetings, where he harangues the hurrying, preoccupied crowds moving from session to session. Typical Bloom rhetoric is "And though you reject me, and scorn me, and deny me, YET ALL WILL BE BROUGHT ONLY BY ME. My will will be, because I have formed you out of the nothingness. You are the Creation of My Hands, And I will complete My Creation and Complete My Purpose that I have Purposed from of old. I AM THAT I AM. I AM THE LORD THY GOD IN TRUTH." The capitalizations are entirely his—he is nothing if not modest.

Bloom has issued a fascinating pamphlet that states: "The complete faculty of Princeton University (including its officers and its deans and the chairmen of the departments listed here) has agreed that it cannot refute, nor show in basic error the proof brought to it, in the book, 'The New World' dated Sept. 1974. This faculty acknowledges as of June 1, 1975 that it accepts as a proven truth THE IRREFUTABLE PROOF THAT AN ETERNAL MIND AND HAND HAS SHAPED AND CONTROLLED THE HISTORY OF

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THE WORLD THROUGH THOUSANDS OF YEARS." A closer reading shows that, despite Mr. Bloom's distributing his pamphlets to more than a thousand faculty members of Princeton University, and despite his offer of a thousand-dollar prize for the first individual to refute his proof, no response whatever was elicited. After six months he concluded that since Princeton did not answer, Princeton believed. Knowing the ways of university faculty members, I have an alternative explanation. In any case, I do not think that the absence of a reply is irrefutable support of Mr. Bloom's arguments.

Princeton apparently has not been alone in treating Mr. Bloom inhospitably. "Yes, times almost without number, I have been chased by police for bringing you the gift of my writing. . . . Is it not so that professors at a university are supposed to have the maturity and judgment and wisdom to be able to read a writing and determine for themselves the value of its contents? Is it that they require THOUGHT CONTROL POLICE to tell them what they should or should not read or think about? But, even at the astronomy department of Harvard University, I have been chased by police for the crime of distributing that New World Lecture, an irrefutable proof that the earth-moon-sun system is shaped by a controlling mind and hand. Yes, and THREATENED WITH IMPRISONMENT, IF I DARE BESMIRCH THE HARVARD CAMPUS WITH MY PRESENCE ONCE MORE. . . . AND THIS IS THE UNIVERSITY THAT HAS UPON ITS SHIELD THE WORD VERITAS: VERITAS: VERITAS:—Truth, Truth, Truth. Ah, what hypocrites and mockers you are!"

The supposed proofs are many and diverse, all involving numerical coincidences that Mr. Bloom believes could not be owing to chance. Both style and content of the arguments are reminiscent of the talmudic textual commentary and cabalistic lore of the Jewish Middle Ages. For example, the angular size of the moon or the sun as seen from the earth is half a degree. This is just 1/720 of the circle (360°) of the sky. But $720 = 6! = 6 \times 5 \times 4 \times 3 \times 2 \times 1$. Therefore, God exists. It is an improvement on Euler's proof to Diderot, but the approach is familiar, and it infiltrates the entire history of religion. In 1658 Gaspar Schott, a Jesuit priest, announced in his *Magia Universalis Naturae et Artis* that the number of degrees of grace of the Virgin Mary is $2^{256} = 2^{28} \simeq 1.2 \times 10^{77}$ (which, by the by, is roughly the number of elementary particles in the universe.)

Another argument that Bloom describes as "irrefutable proof that the God of Scripture is he who has shaped and controlled the history of the world through thousands of years" is this: According to chapters 5 and 11 of Genesis, Abraham was born 1,948 years after Adam, at a time when Abraham's father Terah was 70 years old. But the Second Temple was destroyed by the Romans in A.D. 70, and the state of Israel was created in A.D. 1948. Q.E.D. It is hard to escape the impression that there may be a

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flaw in the argument somewhere. "Irrefutable" is, after all, a fairly strong word. But the argument is a refreshing diversion from Saint Anselm.

However, Bloom's central argument—and the one that much of the rest is based upon—is the claimed astronomical coincidence that 235 new moons is, with spectacular accuracy, just as long as nineteen years. Whence, "Look, mankind, I say to you all, in essence you are living in a clock. The clock keeps perfect time, to an accuracy of one second/day! . . . How could such a clock in the heavens come to be without there being some being, who, with perception and understanding, who, with a plan and with the power, could form that clock?"

A fair question. To pursue it we must realize that there are several different kinds of years and several different kinds of months in use in astronomy. The sidereal year is the period that the earth takes to go once around the sun with respect to the distant stars. It equals 365.2564 days. (The days we will use, as Norman Bloom does, are what astronomers call "mean solar days.") Then there is the tropical year. It is the period for the earth to make one circuit about the sun with respect to the seasons, and equals 365.242199 days. The tropical year is different from the sidereal year because of the precession of the equinoxes, the slow, toplike movement of the earth produced by the gravitational forces of the sun and the moon on its oblate shape. Finally, there is the so-called anomalistic year of 365.2596 days. It is the interval between two successive closest approaches of the earth to the sun; and is different from the sidereal year because of the slow movement of the earth's elliptical orbit in its own plane, produced by gravitational tugs by the nearby planets.

Likewise there are several different kinds of months. The word "month," of course, comes from "moon." The sidereal month is the time for the moon to go once around the earth with respect to the distant stars, and equals 27.32166 days. The synodic month, also called a lunation, is the time from new moon to new moon or full moon to full moon. It is 29.530588 days. The synodic month is different from the sidereal month because, in the course of one sidereal revolution of the moon about the earth, the earth-moon system has together revolved a little bit (about one-thirteenth) of the way around the sun. Therefore the angle by which the sun illuminates the moon has changed from our terrestrial vantage point. Now, the plane of the moon's orbit around the earth intersects the plane of the earth's orbit around the sun at two places—opposite each other—called the nodes of the moon's orbit. A nodical, or draconic, month is the time for the moon to move from one node back around again to the same node, and equals 27.21220 days. These nodes move, completing one apparent circuit, in 18.6 years because of gravitational tugs, chiefly by the sun. Finally, there is the anomalistic month of 27.55455 days, which is the time for the moon to complete one circuit of

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the earth with respect to the nearest point in its orbit. A little table on these various definitions of the year and the month follows.

KINDS OF YEARS AND MONTHS
EARTH-MOON SYSTEM

Years	
Sidereal year	365.2564 mean solar days
Tropical year	365.242199 days
Anomalistic year	365.2596 days
Months	
Sidereal month	27.32166 days
Synodic month	29.530588 days
Nodical or draconic month	27.21220 days
Anomalistic month	27.55455 days

Mr. Bloom's main proof of the existence of God depends upon choosing one of the kinds of years, multiplying it by 19, and then dividing by one of the kinds of months. Since the sidereal, tropical, and anomalistic years are so close together in length, we get sensibly the same answer whichever kind we choose. But the same is not true for the months. There are four different kinds of months and each gives a different answer. If we ask how many *synodic* months there are in 19 sidereal years, we find the answer to be 235.00621, as advertised; and it is the closeness of this result to a whole number that is the fundamental coincidence of Bloom's thesis. Bloom, of course, believes it to be no coincidence.

But if we were to ask instead how many *sidereal* months there are in 19 sidereal years, we would find the answer to be 254.00622; for nodical months, 255.02795; and for anomalistic months, 251.85937. It is certainly true that the synodic month is the one most strikingly apparent to a naked-eye observer, but I nevertheless have the impression that one could construct equally as elaborate theological speculations on 252, 254, or 255 as on 235.

We must now ask where the number 19 comes from in this argument. Its only justification is David's lovely Psalm 19, which begins, "The heavens declare the glory of God; and the firmament showeth his handiwork. Day unto day uttereth speech, and night unto night revealeth knowledge." This seems quite an appropriate quotation from which to find a hint of an astronomical proof for the existence of God. But the argument assumes what it intends to prove. It too is not quite unique. For example, consider Psalm 11, also written by David. In it we find the

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following words, which may bear equally well on this question: "The Lord is in His holy temple, the Lord's throne is in Heaven: His eyes behold, His eyelids try, the children of men," which is followed in Psalm 12 with "the children of men . . . speak falsehood." Now if we ask how many synodic months there are in 11 sidereal years (or 4,017.8204 mean solar days), we find the answer to be 136.05623. Thus, just as there seems to be a connection between 19 years and 235 new moons, there is a connection between 11 years and 136 new moons. Moreover, the famous British astronomer Sir Arthur Stanley Eddington believed that all of physics could be derived from the number 136. With the foregoing information and just a little intellectual fortitude, it should be possible as well to reconstruct all of Bosnian history.

One numerical coincidence of this sort, which *is* of deep significance, was well known to the Babylonians, contemporaries of the ancient Hebrews. It is called the saros. It is the period between two successive similar cycles of eclipses. In a solar eclipse, the moon, which appears from earth just as large (1/2°) as the sun, must pass in front of it. For a lunar eclipse, the earth's shadow in space must intercept the moon. For either kind of eclipse to occur, the moon must, first of all, be either new or full—so that the earth, the moon, and the sun are in a straight line. Therefore the synodic month is obviously involved in the periodicity of eclipses. But also, for an eclipse to occur, the moon must be near one of the nodes of its orbit. Therefore the nodical month is involved too. It turns out that 223 synodic months is equal to 241.9989 (or very close to 242) nodical months. This is the equivalent of a little over 18 years and 10 or 11 days (depending on the number of intervening leap days), and comprises the saros. Coincidence?

Similar numerical coincidences are, in fact, common throughout the solar system. The ratio of spin period to orbital period on Mercury is 3 to 2. Venus manages to turn the same face to the earth at closest approach on each of its revolutions around the sun. A particle in the gap between the two principal rings of Saturn, called Cassini's division, would orbit Saturn in a period just half that of Mimas, its second satellite. Likewise, in the asteroid belt, there are empty regions known as Kirkwood's gaps, which correspond to nonexistent asteroids with periods half that of Jupiter, one-third, two-fifths, three-sevenths, and so on.

None of these numerical coincidences proves the existence of God—or, if they do, the argument is subtle, because these effects are due to resonances. For example, an asteroid that strays into one of Kirkwood's gaps experiences a periodic gravitational pumping by Jupiter. Every two times around the sun for the asteroid, Jupiter makes exactly one circuit. There it is, tugging away at the same point in the asteroid's orbit every revolution. Soon the asteroid is persuaded to vacate the gap. Such

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incommensurable ratios of whole numbers are a general consequence of gravitational resonance in the solar system. It is a kind of perturbational natural selection. Given enough time—and time is what the solar system has most of—such resonances will arise inevitably.

That the general result of planetary perturbations is stable resonances, and not catastrophic collisions, was first shown from Newtonian gravitational theory by Pierre Simon, Marquis de Laplace, who described the solar system as "a great pendulum of eternity, which beats ages as pendulums beat seconds." Now, the elegance and simplicity of Newtonian gravitation might be used as an argument for the existence of God. We could imagine universes with other gravitational laws and much more chaotic planetary interactions. But in many of those universes we would not have evolved—precisely because of the chaos. Such gravitational resonances do not prove the existence of God; but if he does exist, they show, in the words of Einstein, that while he may be subtle he is not malicious.

Since I wrote the above paragraphs Mr. Bloom has not been idle. He has, for example, demonstrated the preordination of the United States of America by the prominence of the number 13 in major league baseball scores on July 4, 1976. He has accepted my challenge and indeed has made an interesting attempt to derive some of Bosnian history from numerology—or at least the assassination of Archduke Ferdinand at Sarajevo, the event that precipitated the First World War. One of his arguments involves the date on which Sir Arthur Stanley Eddington presented a talk on his mystical number 136 at Cornell University, where I now teach. And he has even performed some numerical manipulations using my birthdate to demonstrate that I also am part of the cosmic plan.

Norman Bloom is in fact a kind of genius. If enough independent phenomena are studied, and correlations sought, some correlations will of course be found. If we knew only the coincidences, and not the enormous effort and many unsuccessful trials that preceded their discovery, we might believe that an important finding had been made, whereas, in fact, it would only be what statisticians call "the fallacy of the enumeration of favorable circumstances." But to find as many coincidences as Norman Bloom has requires great skill and dedication. To demonstrate the existence of God by numerical coincidences to an uninterested—to say nothing of unmathematical—public is, in a way, a forlorn and perhaps even hopeless objective. It is easy to imagine the contributions that Bloom's talents might have made in another field. But there is something a little glorious, I find, in his fierce dedication and very considerable arithmetic intuition. It is a combination of talents that, one might almost say, is God-given.

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Fear and Trembling at Yale

GERALD GRAFF

MOST OF US DO NOT ASSOCIATE the practice of academic literary criticism with intense suffering. We think of the professor-critic as a man reasonably well paid for a life of teaching classes, reading books and writing articles and other books about them, going abroad with some frequency on summer vacations, sabbaticals, and research grants, drinking Chivas Regal and Jack Daniels at parties or at professional conferences, and in general enjoying a relative freedom from the more harrowing forms of terror and anguish. This only shows how little most of us know. Not that we are mistaken about the good salaries, the trips abroad, the fine whiskey, and the rest. But we have little idea of the pain and anxiety, the risk and torment that the serious literary critic has to live with. Some of these critics themselves feel that reading ranks in risk and danger with race-car driving or airplane hijacking. The day may not be far off when no first-rate literary critic will be able to purchase health insurance.

"Anxiety" has become one of the key words of contemporary criticism—along with others such as "risk," "crisis," "ambivalence," "pain," "blindness," and "death." True, this vocabulary is by no means new in literary criticism. In certain ways, as I shall suggest presently, it comes as a logical outcome of ideas established long ago. But until recently this vocabulary tended to refer to the *subject matter* of literary criticism—the Existential Anguish of the Modern Writer, or of Modern Man, or of the Human Condition. The critic was content to describe the excruciating spectacle from the grandstand, as it were, with a certain self-effacing detachment and objectivity. He tried to follow T. S. Eliot's dictum that criticism should deal with poetry (that is, literature) "*as* poetry and not another thing," that it should not even be much concerned with the personality of the artist, much less that of the critic himself. But today's critic, who can point to the fact that he is, after all, as much a specimen of Modern Man as anybody, need observe no such restraint. In an age of self-absorption, he may claim his right—and who

GERALD GRAFF is chairman of the department of English at Northwestern University. He is the author of *Poetic Statement and Critical Dogma* and a forthcoming study of contemporary culture and criticism.

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is to stop him?—to let it all hang out in his critical works, to make his agony as a critic the main focus of his criticism. As we shall see, he sometimes maintains that it cannot be otherwise.

A sentence by Paul de Man, whom J. Hillis Miller calls one of "the most rigorous and pervasively influential of present American critics," captures something of the stricken mood that has descended on some critics: "All true criticism," writes de Man in *Blindness and Insight*, "occurs in the mode of crisis." If de Man is correct, then a good deal of the truest criticism being written today is occurring at Yale, the home of Professors de Man, Miller, Harold Bloom, and Geoffrey Hartman, four of the most learned and talented of contemporary critics.

Of this group, the critic who has surely endured the most punishing literary ordeal is Harold Bloom, whom Miller judges to be "perhaps the most dazzlingly creative and provocative of critics writing in English today." Geoffrey Hartman, while taking issue with some of Bloom's ideas, writes of Bloom's "dense, eloquent and experiential brooding." In *The Anxiety of Influence* and a flux of subsequent volumes, Bloom advances the famous theory that "strong poets" are moved by the compulsion to overcome their "belatedness"—the fact that they arrive on the scene, at a moment after earlier poets have exhausted the resources of major poetry. In Bloom's view, modern poets can retaliate against their great predecessors only by forcibly misreading them; in a similar fashion, strong readers may overcome their inferiority to strong poets by forcibly misreading *them*. Reading, then—far from consisting of a humble effacement of the reader's personality to a preexistent text—is a form of combat, a primordial Freudian struggle with the father. And since the modern reader is up against a formidable father in the tradition of Western poetry, he is likely to emerge from this combat severely bruised. As Bloom puts it in *Kabbalah and Criticism*, "Reading is defensive warfare, however generously or joyously we read, and with whatever degree of love, for in such love or such pleasure there is more-than-usual acute ambivalence."

How much more-than-usual Bloom's acute ambivalence can be is illustrated in such passages as the following from *A Map of Misreading*, in which Bloom describes his ideal strong reader:

> This fictive reader simultaneously somehow negatively fulfills and yet exuberantly transcends self, much as Zarathustra so contradictorily performed. Such a reader, at once blind and transparent with light, self-deconstructed yet fully knowing the pain of his separation both from text and from nature, doubtless will be more than equal to the revisionary labors of contraction and destruction, but hardly to the antithetical restoration that increasingly becomes part of the burden and function of whatever valid poetry we have left or may yet receive.

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The fact that the sources of the pain here are somewhat obscure does not make Bloom's account of it less moving. The passage illustrates some of the features of the kind of critical writing that occurs in the mode of crisis: the redirection of the reader's attention from the literary work to the drama of the critic and his ambivalence; the modest critical self-comparison to the Nietzschean superman; the allusion (in this case to de Man's *Blindness and Insight*) to the catchphrases of other anxiety-prone critics; the overstrained syntax and diction, hinting of the critic's heroic, if ultimately futile, struggle against Sisyphean obstacles; and, finally, the unstated assumption that the reader is deeply interested in hearing about the critic's own drama.

The mode of crisis occurs once more in several sections of Geoffrey Hartman's *The Fate of Reading*, which Miller has called "brilliant," adding that Hartman has written "the most important English essay on [Jacques] Derrida"—a key influence on the Yale group—"since de Man's 'The Rhetoric of Blindness.' " Richard Poirier went even further, noting in the *New York Times Book Review* that "praise for [Hartman's] accomplishments is nearly presumptuous." That the fate of reading for Hartman is a fate of more-than-usual acute ambivalence becomes obvious as early as page 4:

> *A strange case.* When I was young (real young) what came in through the senses was so profuse and arbitrary I had no need of heaven and hell. I lived instead in chaos: "Es regnet mir in die Augen." Perception was enough, and too much. The human (i.e., other people) seemed a type of closure, and at best a false mediation that, as Virginia Woolf remarked, shut out the view. I was already overpopulated.
>
> The "unmediated vision" I sought then, seems, in retrospect, not a solution but a form of heroism. I wanted to make the eyeball even more transparent. I wrote because I was too alive and unwilling to die even symbolically. Concentration not dissemination was my ideal. I didn't realize that the chaos I lived in was already a chaos of *forms*, not the abyss God sat brooding on at first creation but the bric-a-brac of centuries. Though I talked about mediation—its need, its impossibility—what I showed happening in art, and identified with symbolic process as such, was more analogous to religious or ritual purification. In short, I was an Ancient without knowing it. Even so . . . I felt that the burden of such purification had now fallen entirely on the individual, or on the artist. Was I right, at least, in this?

By a series of ponderous ironies directed at one of his earlier works, *The Unmediated Vision*, Hartman is able to make drama out of his critical career, thus lending an air of inflated importance to what he has to convey. And what does he have to convey? Insights, too difficult and taxing, evidently, for completely lucid formulation, into struggles with

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heaven and hell, chaos, overpopulation, symbolic death, ritual purification, and mediation—its need, its impossibility. As in the passage quoted from Bloom, the intensity of the critical self-examination results in clogged syntax and general opacity.

But perhaps Hartman's prose is meant to be savored for its literary suggestiveness, not worried pedantically for paraphrasable sense:

> *Dejection as disjection.* Doubles and plurals everywhere. *Elohim*, the sexes, two trees in paradise. Nothing hits the mark, or the right mark in *Hamlet*—except the play. Construct, then, a mousetrap that will catch a sublimer evidence. I see the angel struggling ("you must bless me before dawn") but he has many wings and at cock-crow I find scattered feathers only, a barnyard token. What is it anyway, this fairy trace, but his snare to keep me interpreting? Like a dream we wake up with, fading into a half-life of minutes.
>
> No defense is possible: his countermove works as in chess. Playing his game I scan the fairy-fetish like Kierkegaard the Story of Abraham and Isaac. I who cried "No substitutes!" brood on the silences and articulate the missing portions. The constructivist illusion grows in me, like an archeologist's dream. Can I find my way to the mountain of sight-say through the thickets of exegesis? Sinai, both mountain and thornbush.

Here Hartman's frustration at the uninterpretability of *Hamlet* provides a spectacle considerably more absorbing than anything that goes on in the play. The failure of the prince to trap the king proves no match for the failure of the self-conscious interpreter to capture the meaning of the text. The elimination of logical connectives, like Bloom's dropping of the definite article, is reminiscent of the disjunctive technique of modern poetry, while conveying the self-enclosed feeling of the stream-of-consciousness novel. Criticism should not mean but be.

That, of course, is what they used to say about poetry. And much of the fear and trembling among the critics stems from the conviction that criticism, like literature, either cannot or should not be "about" anything but itself. I use the quotation marks advisedly. All the strong critics do it in order to show that they are not so naïve as to suppose that critical language—or, for that matter, any language—can refer to anything outside itself. As Robert Scholes has written recently in "The Fictional Criticism of the Future": "criticism has taken the very idea of 'aboutness' away from us. It has taught us that language is tautological, if it is not nonsense, and to the extent that it is about anything it is about itself. Mathematics is about mathematics, poetry is about poetry, and criticism is about the impossibility of its own existence." Cary Nelson puts it just as bluntly in a *PMLA* article, "Reading Criticism": "The value of identifying the critic in his criticism is much greater than the value of deciding which theories of literary history are correct and which are not.

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Part of the pleasure of reading criticism is experiencing the subtle ways in which the biases, hopes, and frustrations of the critic are woven into the texture of his language and even into the language of the texts he examines. This dialectic between self and other, embedded in the critic's language and method, is really what criticism is 'about.' "

Literature and criticism are imprisoned in language and so are "about" themselves. This view underlies much of Bloom's anxiety, and it helps explain Hartman's witticisms at the expense of his earlier belief in unmediated visions. It is what Hartman means when he represents himself as "an Ancient without knowing it"—one imprisoned, that is to say, in an already artificial network of traditions and forms—and when he gropes toward "the mountain of sight-say through the thickets of exegesis." It is what de Man means when he states that criticism is necessarily "blinded vision," and adds that a "discrepancy exists in everyday language, in the impossibility of making the actual expression coincide with what has to be expressed, of making the actual sign coincide with what it signifies." De Man, who is to blindness what Bloom is to anxiety, rivals his colleague in descending to the Nietzschean depths of critical extremity. "Here," he writes at the conclusion of his chapter "Criticism and Crisis," "the human self has experienced the void within itself and the invented fiction, far from filling the void, asserts itself as pure nothingness, *our* nothingness stated and restated by a subject that is the agent of its own instability." The consciousness of "*our* nothingness," of the fictionality not only of what we say but of the self that says it, is one of the chief "insights" afforded by criticism in its blindness.

De Man exempts literature from the blindness afflicting criticism by a curious argument: literature does not *pretend* to be other than a fiction; therefore it cannot be self-deluded. Literature, according to de Man, "knows and names itself as fiction." "For the statement about language, that sign and meaning can never coincide, is what is precisely taken for granted in the kind of language we call literary. Literature, unlike everyday language, begins on the far side of this knowledge. . . ." In making this sweeping assertion, de Man is not interested in distinguishing between literary plots, characters, and actions, which nobody would deny are "made up," and literary themes and world views. The work's view of life is as fictional as its setting—and "names itself" as such. It follows from this that literature cannot be "demystified" by the likes of "deconstructers" such as Derrida, for "it is demystified from the start." You cannot expose the falsity of something that makes no claims to any truth to begin with. Miller, in his essay "Deconstructing the Deconstructers," makes the same point: "great works of literature . . . have anticipated explicitly any deconstruction the critic can achieve." Literature is

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thus protected against skeptical attack by a declaration of bankruptcy.

But why should criticism not be accorded the same limited liability as literature? If "sign and meaning" can never coincide, then criticism should be as capable as literature of giving up its truth claims and conceding its own "nothingness." Only a few years ago Susan Sontag, introducing a translation of Roland Barthes, asserted that "one can't object to *Writing Degree Zero* simply because its leading concepts are intellectual myths or fictions." Now comes Bloom (and Barthes and others) with the extension of this principle to all criticism. "There are no interpretations but only misinterpretations," says Bloom in a statement that has been widely quoted, "and so all criticism is prose poetry" (*Anxiety of Influence*). Bloom makes a similar point in *Kabbalah and Criticism*, observing that "a theory *of* poetry must belong *to* poetry, must *be* poetry, before it can be of any use in interpreting poems."

That readers misinterpret literature has probably been recognized as long as literature has existed. Only recently has this human deficiency been turned into a law, and from a law it next becomes a recommendation. Here an ambiguity arises in the theory of misreading, for it is not completely clear whether we have no choice but to misinterpret or whether we might interpret correctly but *ought not to want to*. Bloom and his colleagues frequently imply that we have no choice, that there is "a dumbfoundering abyss between ourselves and the object, or between ourselves and other selves." But Bloom also says that "the strongest of poets are so severely mis-read that the generally accepted, broad interpretations of their work actually tend to be the exact opposites of what the poems truly are." Here Bloom seems to be disagreeing with himself by implying that we *can* know what a poem "truly" is. For that matter, the very concept of a *mis*reading seems to presuppose that there is such a thing as true reading and that we know how to recognize it. Perhaps it is not the unknowability of literature that causes the anxiety (how can we be anxious about an influence unless we know what it is?) but the feeling that literature is all too knowable—so much so that our interpretive freedom is restricted.

Without pretending to have the answers to these questions, I do know that the current belief that we have lost the key to interpreting texts can at times be an occasion for celebration. The hermeneutics of tragic angst modulates by imperceptible degrees into the hermeneutics of post-tragic joy, joy at the creative freedom of the interpreter. The model statement here is an often quoted one by Derrida, in his essay "Structure, Sign, and Play in the Discourse of the Human Sciences," which proposes a style of interpretation expressive of a "Nietzschean *affirmation*—the joyous affirmation of the freeplay of the world and

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without truth, without origin, offered to an active interpretation." The "freeplay of the world" is the randomness of a world without intrinsic order or meaning; the "active" interpretation is that which asserts the critic's freedom in this absurd universe—in contrast to the bad faith of criticism that passively conforms to the text or to its "origin," the author's intention. Of course, if there is no such thing as "conforming to the text" or to the "author's intention," then no form of interpretation can avoid meeting Derrida's prescription. One cannot be said to "lose" an authority that was only an illusion to begin with. You cannot be alienated if you were never connected.

Another way of making a virtue of the necessity of misreading is to conceive literary response as an affair of the body rather than the mind. Cary Nelson argues that Hartman's *The Unmediated Vision*, though it looks like a mere "study of four authors," is really, "in its own right, an odyssey of critical consciousness in search of its true body." Perhaps it is no accident that this corporeal view of reading has arisen at a moment when many people feel—as a result of what they take to be the repressive nature of their culture—a need to "get in touch with their bodies." The critic who has probably gone furthest in getting in touch with his body is Roland Barthes. According to Steven Ungar, a reviewer in *Diacritics*, Barthes has managed admirably "to keep scientific pretense at bay and regain contact with himself (*'avec le ça de mon corps'*)." In *The Pleasure of the Text*, Barthes proposes what Ungar calls "a metaphoric equivalence of text and body which removes reading from science and resituates it in pleasure." In Barthes's own words the text may be seen as "a body of bliss consisting solely of erotic relations." It is an anagram of "our erotic body," et cetera. According to Ungar, Barthes has delivered the "erotics of art" that Susan Sontag wished for a decade ago in *Against Interpretation*. Richard Howard, introducing the American edition of Barthes's book, agrees: the book instances "our ecstasy, our bliss in the text against the prudery of ideological analysis." Such critical rhetoric reduces everything to two choices: either you treat the text as a "body of bliss," whatever that may mean, or else admit you are a scientific, analytical prude.

If all interpretation is misinterpretation, then there is one form of anxiety not risked by the literary critic: that of possibly being wrong about a text. A non-Yale critic, Stanley Fish, says that his own brand of "affective criticism" is "a superior fiction," because "it relieves me of the obligation to be right (a standard that simply drops out) and demands only that I be interesting (a standard that can be met without any reference at all to an illusory objectivity)." It is tempting to label this the No-fault Theory of Interpretation. Yet the misinterpretation thesis does

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not, in the view of those who advance it, imply that all misinterpretations are of equal value and that anything goes. Many programmatic misreaders get indignant, in fact, when others accuse them of reducing interpretation to indiscriminateness and pointlessness. Thus Miller reminds us that "there are obviously strong and weak critical misreadings, more or less vital ones." But what are the criteria for distinguishing a strong, vital misreading from a weak, anemic one? To what, precisely, is a strong misreading accountable? One common answer (Roland Barthes supplies it in an essay on "What Is Criticism?") is that although interpretations cannot correspond to any text, they can and should be internally "coherent." But this says only that an interpretation may be as arbitrary and foolish as it likes so long as it remains consistent with its own arbitrariness and foolishness. Since interpretive truth has been ruled out as impossible or irrelevant, we are left to conclude that a strong misreading is one that compels attention by the sheer force of the critic's style and personality.

I suggested at the outset that the histrionic style in recent criticism has a precedent in the criticism it sometimes claims to have superseded. The newer new critics are contrasted with the old New Critics, who are said to have naïvely regarded literary works as static "objects" and to have ignored what we now insist upon—that literature is an open-ended, dynamic "experience" unfolding in the actively collaborating mind of the reader. This view of recent literary history betrays an imperfect memory. For New Critical theory and practice often made literary meaning into a highly volatile and indeterminate affair. Critics such as Cleanth Brooks were not unaware that "the modern poet has, for better or worse, thrown the weight of the responsibility upon the reader." When Brooks and William Empson stressed the multiplicity, complexity, and ambiguity of poetry—its "dramatic" character as an "action" or "experience" rather than a statement "about" an action or experience, its resistance to "the heresy of paraphrase"— they took a big step toward making literary meaning what Miller calls "undecidable," that is, open to an infinite number of interpretations, all of which may be "right" even when they are logically incompatible. Although this approach had the salutary effect of pointing up the richness of literature, it left unclear—as current criticism often leaves unclear—where the limits of textual ambiguity may be drawn. It was difficult to see, as critics of the New Critics objected, how a writer could decide *not* to mean a particular meaning, refuse to mean it, in the face of an interpreter determined to make the text mean it. One might argue that there is no harm in that—the more ambiguities, the better for literature. But such an open-ended view of reading trivializes the free interpretations it allows. The reader

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sees what he wants to see in the text, and therefore it makes no difference what he sees.

Hartman's lament that "nothing hits the mark, or the right mark in *Hamlet*—except the play" is reminiscent of one of the platitudes of the New Criticism (and of post-Romantic literary theory): the principle of self-significance, which holds that what a literary work "means" is finally itself, not any secondary formulation that may be attributed to it. As Brooks stated this principle: "The poem says what the poem says." The work, in effect, means at once everything one can say about it and nothing one can say about it. Consequently, according to Brooks, "to refer the poem to what is finally a paraphrase of the poem is to refer it to something outside the poem." The logic of this position, if followed to the end, leads to the current impasse: criticism has no access to literary texts and is itself prose-poetry.

The existence of this impasse did not go unnoticed either by the New Critics or their commentators. Morse Peckham, in *Man's Rage for Chaos*, parodied the New Critical position as follows: ". . . poetry has a unique kind of semantic structure which reveals a unique kind of truth. Poetry says things which cannot be said in any other language. And what's more, we shall now tell you in non-poetic language what that meaning is which cannot be said in non-poetic language, though, for this reason, you must not imagine that you will know what that meaning is. That meaning can only be experienced; it cannot be known."

When the New Critics assigned literature a different "ontology" from that of conceptual discourse, they privileged literature (while leaving its relation to reality obscure) and deprived criticism of authority. Recent critics have gone a step further and denied the privileged authority of *all* discourse, literary *and* conceptual, so that the New Critical opposition between literature and discursive language disappears—but only because both are cut off from reality. Contemporary criticism has closed the gap between the literary and the nonliterary, not by returning literature to the real world but by transforming the "real" world into a literary fiction. Literature ceases to be alienated from the world because alienation has been made total. In all this, the critic remains where he was—a tragic seeker for what is by definition out of reach.

A later theoretical exponent of the New Criticism, Hazard Adams, described this tragic predicament in *The Interests of Criticism*, a book of the late sixties. His description has turned out to be prophetic:

> It appears that there is an ineradicable Romantic irony in the enterprise of criticism. Like the quest of the Byronic hero, it is endless and yet at the same time valuable—endless because its terms are finally self-defeating, and valuable

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because in its own inadequacy it calls attention to the greater adequacy of the poem itself, which manages to say or be more than remarks about it can ever say. For this reason it is possible to characterize criticism as fundamentally negative. It is always denying the adequacy of *any* critical statement and constantly urging us to look again.

This sounds like mere common sense. Who could object to the idea that criticism ought to call attention to the greater adequacy of the work itself, that the work manages to say or be more than remarks about it can ever say? But romantic irony is not romantic irony if its contradictions can be resolved by the middle way of common sense. Romantic irony assumes an unbridgeable gulf between the knower and its object; all attempts at formulation are tragically or absurdly arbitrary and problematical, reduced to aspiring for "strength" in a universe in which nobody can be right or even wrong. Adams's statement of the "negative" character of criticism at least strongly anticipates what Hartman, in "Literary Criticism and Its Discontents," calls the "negative hermeneutics" in vogue today.

On the other hand, it is possible that the true source of the malaise of current criticism is not so much epistemological or ontological as institutional, that it is a reflection of the confusion of the literature department. All the members of the Yale group write self-consciously as critics in an age of critical (and cultural) overproduction—an age in which so many "readings" have collected around even the slighter authors and works that we have begun to lose confidence in our ability to read. Yet even this is to misstate the problem, which is not that there is too much criticism, but that too little of it arises to meet a genuine demand, to answer questions that are really worth asking. The understandable, though distorted, reaction is a general resentment against critics working in conventional modes (Bloom calls them "carrion-eaters, Old Style"), and this resentment often gets expressed as skepticism.

Perhaps we have not really lost our capacity to interpret literary texts with relative correctness, but have simply lost interest in this project. If so, it is not the metaphysical groundlessness of criticism that is at issue, but its pointlessness, at a moment when the humanities do not seem to know what they are trying to do. Philosophical skepticism has no doubt contributed to this loss of rationale in the humanities, but the current skepticism seems as much an effect of the predicament as a cause. It is not that there is so much criticism that we no longer know how to distinguish correct from incorrect readings, but that so much of the correct criticism is mechanically produced that we have begun to regard truth as cheap. Mere literary history, having been splintered into dissociated fragments of "research," no longer seems interesting—unless

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history is divorced from science and treated as a myth. A parallel here is Oscar Wilde's impatience with the "careless habits of accuracy" of the literary realists at a moment when advances in technology had made the representation of reality commonplace but its justifications less clear. The current rejection of objective norms of interpretation may be an expression not so much of epistemological doubt as of boredom and resentment, or of boredom and resentment mistaking themselves for doubt.

The literary quarrel with the objective way of knowing is really a quarrel with certain uses of objectivity characteristic of industrial society. Literary attitudes toward objectivity have long derived from a view of science, technology, and commerce as fields in which human beings are reduced to objects. Objective thinking, then, by a kind of guilt by association, emerges as the enemy of humane values. In order to represent humanness, literature must define itself as something in which objective consciousness plays no part and with which it has little to do. It follows that to read objectively is to dehumanize literature—the antidote for which is "creative" response, even to the point, perhaps, of turning criticism into second-rate prose-poetry or third-rate eroticism.

This crude strategy can be seen in even so sophisticated and elusive a thinker as Hartman: "The attempt to establish an objective or scientific hermeneutics," he writes, "is an act of defensive mastery. It seeks to keep an unruly, changeable language within the bounds of intelligibility." Hartman associates such efforts at rationalization with "technocratic violence: a will to mastery common to most theological and scientific explanation. It is precisely this type of violence which has made us lose contact with things and so with authentic languaging." Having convinced himself that objective interpretation is a form of technological rape, Hartman is forced into a sentimental invocation of "authentic languaging" and unrationalized "things." And what Hartman advances cautiously, and with qualifications, others carry to the full—equating objectivity with dehumanized, "value-free" science, technics, and commerce, as well as with a neurotic fear of uncertainty that craves a final solution to all problems. Humanness can be restored, then, only by invoking strength and life and authenticity against rationality, and by setting up an opposition between experiencing the text and getting it right. This way of thinking gives an aggressive turn to what is essentially a defeatist idea of literary culture, one that defines literature as a refuge of creativity and values, reconciled to its severance from knowledge and power. As if modern society had not already made literature unimportant enough, the critics now reduce it to absolute nullity.

For more than a century, men of unquestioned genius have held that

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we cannot hope to understand our experience even to an imperfect degree, that mind is a "metaphysician in the dark," a stranger in a world it can scarcely identify with certainty, and that literature does not confer knowledge so much as obstruct it or cure us of seeking it. This philosophy of nothingness has informed literary works of comic and tragic power. Yet nothingness, perhaps more readily than less portentous systems of ideas, can degenerate into formula, bathos, and unearned generalization—as a good deal of contemporary literature illustrates. It becomes "*our* nothingness," taken for granted with too much facility to be perfectly convincing. And if an attitude has become facile in literature, how much more so is it when it takes up residence in criticism? In order for anguish to be convincing, it must seem unwanted. But today there are reasons for not wanting life to make sense or for literature to be able to clarify it. If it were otherwise, we should no longer have an excuse for heroic despair. We should have to discard some of the central ideas of literary modernism—for this is what the malaise of criticism finally amounts to: modernism weary of itself and knowing it, but not ready to strike out in a different direction.

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Poems

D. M. THOMAS

Vienna. Zürich. Constance.

In May 1912 Freud visited the town of Constance, near Zürich, to spend a weekend with a sick colleague. Jung was deeply hurt that he had not taken the opportunity to visit him in Zürich; Freud equally so that the younger man had not come to see him in Constance. Their relationship, already strained, ended abruptly soon after.

It was a profound unmeeting.
The train on the branchline from Zürich to Constance
Held a carriage which held a compartment
With a white seat-cover with an impression of Dr. Jung,
Slit eyes, in a pugnacious bullet head,
By no means the merry young man of his old age.

The young woman opposite, bright
In a black-and-white striped dress, a blue neck-scarf,
Did not chat to the man not clutching his brief-case
But read through the short journey, smiling occasionally,
Nor did she follow him out at Constance
Where he was warmly embraced by an older man.

The train on the branchline from Constance to Zürich
Held a carriage which held a compartment
With a white seat-cover with an impression of Dr. Freud,
His face graven with battles, genial-eyed.
The young man opposite in a modern, very
Tight brown suit with a heavy Victorian watch-chain

Was not startled by the old gent not leaning forward
And not telling him with a twinkle why he had stammered
Momentarily over the word Constance,

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But rubbed his hands dreamily and gazed out.
Nor did he help him with his case at Zürich
Where he was greeted cordially by his son.

By a strange coincidence
The young woman who would have been in Jung's compartment
Had Jung been travelling, was the mistress
Of the young man who would have been in Freud's compartment
Had Freud been travelling. Having confused
Their plans, they passed each other, unaware.

Waiting for him in her hotel at Constance,
The young woman stepped out of her rainy clothes.
Her fur hat momentarily became a vulva.
Waiting for her in his hotel at Zürich,
The young man stared irritably out of the window
And saw an uncanny light pass across the sky.

Emma and the children leaving the table,
The sage head darkly reflected in its polish
Did not gracefully accept the modified libido theory.
Gazing into the waters of Lake Constance,
A fatherly hand resting on his shoulder,
Jung did not smilingly abjure his mystical drift.

Freud dined somberly with the faithful Binswanger,
And pleaded a headache. Jung worked late. Owls hooted.
In their uneasy sleep the two exchanged their dreams.
Snow fell on the Jungfrau. Lenin dreamlessly slept.
The centuries slowly drifted away from each other.
In Emma's kitchen-drawer a knifeblade quietly snapped.

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Orpheus in Hell

(in memory O.M.)

Perhaps if he praised Death? . . .
They might spare her.
But what came to him was a flight of starlings.

He had never known such torture.
He dragged in a writing-desk,
He sharpened a pencil, laid out a sheet

Of white paper, and made himself sit.
But before he could find a line about Death
He was up and pacing the close and lightless

Room and his lips were moving
Joyfully, his image of her
As the earth's menstruation

Had started up an image of poppy-fields
Blowing red in the clean wind.
He ground his teeth

And made himself sit down again
At the hideous blank paper
And she tried to help him concentrate

By pretending to be asleep
Since it was impossible for her to walk out
And leave his lips free to compose.

He tried to praise her death,
But he was up and pacing on his worn shoes
With a lyric of how her warm lips couldn't

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Hide their wakefulness, and she opened her eyes
And smiled, and, smiling, he groaned,
Sat down at the desk and scrawled something.

And in time his Ode to Death saved her.
They were content to keep him only.
She rose to life with a whole notebook of poems

That had seeped like immortal living gum
Out of the dead wood of his death ode,
And every morning she ran it through

In her memory, and every night,
So that the trees and rocks still moved with it.

✪ D. M. THOMAS's most recent books are *Love and Other Deaths*, and translations of Anna Akhmatova, *Requiem and Poem Without a Hero*.

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Sherry and Skepticism

Oxford Days

(For Hil)

LEON WIESELTIER

VENICE, SAID PASTERNAK, is a town inhabited by buildings. So too is Oxford, especially to the stranger. The British are not easy to be new among; they yield their secrets slowly. Oxford's charms are more immediately apparent. The town is a happy collaboration of God and architects. Christchurch's severe, imposing quads give way abruptly to tame, leisurely meadows where, one is not surprised to learn, Constable sketched. The retiring and the grand structures of Magdalen stand by the timid Cherwell, whose waters one gladly follows along what is known as Addison's Walk—the footpath around a small island remarkably untouched by landscaping hands. (These "wilds," again not surprisingly, Turner drew.) In the autumn that reclusive footpath becomes a mottled carpet of riotous reds and golds, which makes concentrating upon one's work exceedingly difficult. Everywhere in Oxford there is a welcome feeling of concentration ineluctably relieved, as stone softens into green. ("Nature invades," began Auden on Oxford.) One feels it even among the gently huddled houses of Holywell Street, to which one escapes from the architectural and academic gravity of All Souls and the Bodleian. I was serendipitously drawn to my new surroundings. A friend, already ailing at the train station from difficulties that in some measure beset all Americans who come to Oxford, protested that these buildings evoked for him only Riverside Drive.

About much of Oxford there prevails a deep decorum. Which is to say that a New Yorker newly arrived is going to feel terribly out of place. My unhappy friend—who has since made his peace—was from New York, as was I, and for us the quiet nights, which began cruelly with the closing of the pubs at half-past ten, were at first quite maddening. We killed the late hours exploring empty, slightly unreal streets. In the hidden cobbled lane behind Queen's College the heavy darkness could have showed us more stars in the sky, when all it did was call out misplaced instincts about muggers. We wondered about a people who

LEON WIESELTIER was recently a Kellett Fellow in philosophy at Balliol College, Oxford. He is now doing graduate work in Jewish history and literature at Harvard University. His essays have appeared in the *New York Review of Books*, the *Times Literary Supplement*, and *Commentary*.

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seemed content with a life so ostensibly devoid of disturbance. With time, the disturbance being visited upon life in England became clearer. With time, too, I learned to need the stillness and to notice the stars.

Of my early days at Oxford, as of my early days at other places where a foreign tongue is spoken, I remember little except considerable confusion and loneliness. Confusion not least because of the university's somewhat baffling structure: it was helpful, if hardly reassuring, to learn that don, fellow, tutor, and supervisor could be one and the same versatile individual. Loneliness because the British are not good at making one feel rapidly at home. It did not take long to appreciate that their extraordinary civility was often an effective device for keeping people at an unimpeachable distance from one another. They appeared quite capable of getting along comfortably without any great fun or rapture. But then there is rapture and there is rapture; surely nothing short of rapture moved the numerous gentlemen from the south who proudly filled the letter columns of *The Times* with excited reports of stoats sighted marching in formation across local roads. About matters of the heart the British seemed strangely embarrassed. As for matters of the loins: during my first week in Oxford the windows of a prominent department store were being redressed, and on display was what I thought was a less than titillating collection of naked female manikins. I was somewhat startled to observe, however, numerous pedestrians nervously turning away and picking up their pace; like Milton's blushing angels, "a rosy glow suffused their cheeks."

With a few weeks to go before Michaelmas term commenced, I sought counsel about my bewildering new neighbors in some of their writers, and found this in Forster's winning "Notes on the English Character":

> For it is not that the Englishman can't feel—it is that he is afraid to feel. He has been taught at his public school that feeling is bad form. He must not express great joy or sorrow, or even open his mouth too wide when he talks—his pipe might fall out. He must bottle up his emotions, or let them out only on a very special occasion. . . . The Englishman is an incomplete person. Not a cold or an unspiritual one. But undeveloped, incomplete.

This made sense until I knew a bit better. After two years in England I concluded that in many respects there was really little difference between the English and myself, and that where we differed it was sometimes in their favor. My English friends suffer from no great affective disabilities. What almost all possess, however, is a distinctive and measured style of sentiment, which is often admirable and always rather bracing. This style is best described as a lively sense of the pertinence of privacy to ordinary human dignity. Privacy had not figured high among

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the moral priorities of the cultures in which I was formed: an emotionally charged pocket of Eastern European Jews in Brooklyn, and the appetitive rites of what remained of the late sixties in the early seventies. Both were forms of life in which, for different reasons, one wore one's heart on one's sleeve (when, that is, one wore a sleeve). In England, however, familiarity took time, and had to be genuinely won. Once won, it stuck.

True, there was always a sedulous, precise, constrained, almost Proustian quality to life in Oxford, which was frequently exasperating. *Etourderie,* save of the undergraduate or moneyed sort, was usually in short supply, and too much drama was often attached to the domestic. Delicacy comes to too many in Oxford too soon; perhaps people unaccustomed to the public display of emotion are prone to slide into affectation. But affectation in Oxford, not least among anglicizing Americans, is a subject on which I must not get started.

Still, it is too easy to rehearse—or parody—the flaws of the British, and these are in any event the weaknesses of real strengths. Better, surely, to have emotions a bit bottled up than to have them come in disposable flip-top cans. The seriously considered honesty I encountered there was nothing like the ponderous and pathological truth telling I knew here. The decency of many people I met was splendidly effortless. And all was tactfully relieved by unfailing irony and delicious humor. Maybe I was lucky, and England is not, after all, the best place to bring one's thirsts to. But the little bit of England I left behind in Oxford was a spirited community of respect, stimulation, and good times that I have not so far been able to replace.

The England I knew proved not to be the sessile and unfired place it had been cracked up to be, not least because events did not permit. British society has come in for its own generous share of hardship and anomie. It is no longer quite the resilient and boring model of social order many expect it to be. To take but one example: class affiliation—or the sheer belief in it—still matters considerably, and occasionally offends egalitarian ears; but the boundaries between the three Englands are often a bit blurred, and many young people I know are no longer willing to have their horizons fixed by their inherited class. Nor should they be. Lionel Trilling liked to argue that Emma Bovary was not pathetic but exemplary—why shouldn't she have kindled to the prospect of glamour and a more various life? Emma, of course, destroyed herself, but there is little reason to worry that ambitious or dislocated Britons will, or that their time-honored and tested inner resources should require the deferment of their own happiness.

What was alarming, however, was the discovery that as the expectations of Britons grow more expansive—if only by keeping pace with

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expectations elsewhere—their society becomes less and less capable of providing for them. Academic, intellectual, journalistic, or any other enviable form of employment is, for instance, painfully difficult to find; when found, it may keep bread on the table but not much meat. (The gap between American and British salaries for comparable jobs is astonishing: to cite only an extreme but not untypical case, Barbara Walters's counterpart at the BBC earns all of fourteen thousand pounds a year.) It is not so much the waning of national greatness with which England must cope—her neighbors are not exactly swaddled in glory, either—but rather with a real depletion of the individual's options, with the demoralizing possibility that her citizens, in the pursuit of their personal aspirations, may have a better chance elsewhere.

I was in residence at Balliol College from October 1974 until June 1976. Balliol—down the street from Blackwell's, the Con Edison of bookshops—is a small but intense college, the college of Jowett, Arnold, and Hopkins, not much to look at but an interesting place to be. Among its peers Balliol is noteworthy for intellectual energy and puerile politics. One of the advantages for graduate students at Balliol is a lovely place called Holywell Manor, at which a fortunate few may reside, replete with decorous garden, well-stocked bar, and discreet scouts. (A scout is somebody, in my case a dear lady named Margaret, who makes one's bed and tidies one's room—a mother with no rank to pull.) Next to Holywell Manor stands a venerable stone church behind which are buried such local luminaries as Walter Pater, Max Müller, and Kenneth Grahame. Pater, I must report, has been done an injustice. He lies, untended, beneath an obscure white crucifix on which are engraved only the words "*In te Domine speravi.*" Not exactly Marius's credo, that.

I went to Oxford to study philosophy. There I discovered that one does not study philosophy, one *does* it. As students of the subject we were entitled by custom to refer to ourselves as philosophers—like Aristotle and Kant, but maybe a little different. Although modern British philosophy came originally out of Cambridge, where Russell boldly recharted its course and Wittgenstein presided firmly as its genius, it was from Oxford that the analytic wisdom subsequently went forth, and since the 1930s Oxford has been to philosophy something like what Detroit has been to cars. Except that in Detroit there are more models to choose from.

Analytic philosophy, to put it oversimply, operates on the assumption that most philosophical problems are not to be solved, but (as they like to say) cured; that a good deal of what has perplexed philosophers since Athens may confidently be imputed to the sloppy or improper use of language. "Philosophy, as we use the phrase," wrote Wittgenstein, "is a

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fight against the fascination which forms of expression exert upon us." Language, in theory or as it is actually employed, became the obsessive focus of philosophical deliberations. And logic gave the cues, provided the standards and procedures for the relentless clarification of misleading propositions.

Wittgenstein was alive to what philosophy's wholesale disabuse of its own patrimony meant: "One might say that the subject we are dealing with is one of the heirs of the subject which used to be called 'philosophy.' " But among analytic philosophers it was he who never lost sight of philosophy's traditional targets, who was as quickened by Augustine and Tolstoy as by Frege and Russell, whose pioneering explorations into logic and language were unflaggingly exercised by ethics, art, and religion. His disciples have been, if no less imaginative and rigorous, certainly less ambitious. I never quite accustomed myself to these new philosophers, these clever, arrogant, impoverished, unspeakably professional young men and women brandishing their quantifiers at the eternal truths. When I once expressed my misgivings to a hale Gilbert Ryle, he advised me to be patient. Philosophy, he said, is in for another decade or so of "tool sharpening," after which it may still recover its former largess. Perhaps he was right; recently no less a logical eminence than Saul Kripke has wondered in print whether all the notational hardware is really necessary. Still it was saddening to find so many talented people coveting a sensibility that knows none but logical needs.

I began my work with A. J. Ayer and stayed gladly with him for two terms. He was considered by impatient younger colleagues to be philosophically démodé, Oxford's last professorial hold-out to ancient Viennese history. By most accounts, Ayer's finest work has been his studies in the theory of knowledge, and by reputation he was said to be a man uncommonly well qualified to understand how the senses work. He proved to be, argument for argument, perhaps the sharpest man I met. More refreshing in the philosophical humidity of Oxford, however, was his stylish and irrepressible conviviality. My glass in hand throughout our sessions, the talk easily turned to his vivid and occasionally mischievous memories of the thirties and forties, best of all to delightful reminiscences of Russell. In my lonely salad months at Oxford, Ayer's tutorials became dependable fortnightly boosts. Yet I am quite certain that I enjoyed his company much more than he enjoyed mine. For I must confess that—as Ayer and my other long-suffering tutors know too well—my heart was not in it. Logic's waters proved always too deep for me to swim, and the meager rewards I could make out dimly on the other shore were never enough incentive to try. I sought sanctuary in poetry, which I spent a good deal of my time reading illicitly.

Philosophy continued to hold my interest, but, as before, philosophy

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as a unit of life—the intersection of ideas with people and events. It was hopeless, however, to argue for the history of ideas among Oxford's philosophers. For most of them that discipline ended when they knew that the *Critique of Pure Reason* was written after the *Essay on Human Understanding*. And even that was dispensable information. In what someone has happily called the "eternal common room" theory of philosophy, these philosophers operated as if at the other end of their seminar table, discernible through the smoke billowing from everybody's lucubratory pipes, sat Mr. Locke and Geheimrat Kant themselves, and they, like everybody else present, had only the cogency of their arguments to recommend them.

Such irreverence, attended by a healthy disregard for immortality, could at times be quite engaging. Analytic philosophy is remarkable, too, for proceeding entirely unaffected by modern culture: it probes for definitive truth as if Marx and Nietzsche and Freud never existed. Of course the truths it seeks are considerably less high. But its naïve, stiff-necked insistence that some manner of truth is still accessible, and to a collaborative effort, is itself rather appealing.

Insofar as analytic philosophy remains committed to the solution of philosophical problems and the attainment of philosophical truths, it continues—perhaps despite itself—to do what philosophers have always done. And it is just this old-fashioned strictness about the business of thinking that makes exposure to philosophical analysis a salutary experience for the historian of ideas. However much they ignore the origins, style, and career of a thinker, the analytic philosophers at least take him seriously as that, as someone who toiled not to exhibit influences but to work out pressing intellectual difficulties. To understand a thinker, dead or alive, it is, if not sufficient, certainly necessary to identify arguments and consider their merits. It may be the historian talking of Kant's Lutheranism who condescends, not the philosopher who ignores it to find his real philosophical commitments. This I culled from a fruitful term's work with Peter Strawson, whose book on Kant, *The Bounds of Sense*, remains a model of what, in the best of all possible worlds, intellectual historians should be able to do before making other connections. Nothing is worse, after all, than the history of ideas done badly.

There are, naturally, analytic philosophers whose sympathies extend to different traditions of thought. At Oxford I was happy to find Patrick Gardiner, Anthony Kenny, and Alan Montefiore, and the inimitable patronage for more diverse interests of Isaiah Berlin. But the influence of strident, hard-core philosophical logic upon the academic climate at Oxford has been pervasive, and is in part responsible for what appears to be Oxford's greatest flaw, its intellectual agoraphobia. An acquaintance who taught social theory there often complained bitterly that he could

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not have his pupils read Weber or Pareto because they were required instead to rehearse the two dozen different meanings of "methodological individualism." Nor is the teaching of literature or history at Oxford, distinguished in many ways though it is, about to expire from an excess of critical speculation. (Such a danger Cambridge sometimes poses. What an evening it was when Christopher Ricks lectured zealously to hundreds of rapt students about Bob Dylan. He elucidated the metrical structure of "The Lonesome Death of Hattie Caroll," isolated the Symbolist motifs in "Sad-eyed Lady of the Lowlands," and played three different recordings of one song—I think it was "Blowin' in the Wind"—in the hope, perhaps, of doing a critical edition.) Gibbon, not one of Oxford's most adoring sons, lamented that he found it "steeped in port and prejudice"; I found it steeped in sherry and skepticism.

But Oxford may be overcoming its fear of wide-open mental spaces. Indications are, at any rate, that new and perhaps more fertile modes of thought are insinuating themselves between the logician's p's and q's. At Wolfson College, during its golden age when Berlin was its inspired president, a series of distinguished lecturers on the history of Enlightenment ideas drew capacity crowds, as did the memorable appearance of Roman Jakobson. Out of the study of literature now comes a burgeoning interest in structuralist theory, in the philosophical researches of Foucault and Derrida, which in turn are teasing some philosophers even into the hermeneutic circle. Out of the study of politics comes an equally infectious concern with the conceptual panoply of European Marxism, and from Lukács and Gramsci it is a quick step back to Hegel and Marx themselves. (At the turn of the last century, Oxford was a veritable mecca of Hegelianism and Idealism—almost impossible to imagine now.)

In some respects these developments may not be entirely encouraging. Too many of those interested in the new imports approach them not as students but as believers. Inevitably, too, some murk will also cross the Channel, as occurred last year when Jacques Lacan lectured—or rather performed—at the university's Maison Française. Nor do I mean to suggest that the temper of intellectual activity in Oxford is rapidly changing, or is even in irreversible flux: an Israeli friend writing on Collingwood and Bradley still has to argue for his topic's right to exist. But the mind of Oxford is in for a bit of leavening, which cannot hurt, and the contest between suggestiveness and clarity will be an intriguing one to watch.

On a dreary night in December I was invited by my tutor for dinner at his home in the countryside. I had not a clue how to get there, and I decided, as always when such affairs of the real world pressed, to consult the college porter. In the porter's lodge I first checked my mailbox,

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discovered a letter, and, reading it, made my way over to the glass window behind which the porter is usually to be found. Eyes still on my letter, I asked which bus, if any, could take me to my destination. There was no answer. I looked up and saw why. There before me, slumped in the porter's chair, sat the exhausted and unresponsive Right Honorable Harold Macmillan. It was the proletariat's dream come true: the former—and Conservative—prime minister of England in the porter's bleak place, available for queries about buses and missing bicycles.

Since I was less than a devout member of the congregation of the Left, the epiphany in Balliol's lodge was, I'm afraid, wasted upon me. Many a fellow member of my college, however, would have found his political consciousness in a swoon. Balliol is—from Master Christopher Hill down to its latest overheated batch of examinees in philosophy, politics, and economics—more or less the fount of radical politics at Oxford. In Balliol's tutor of politics—William Weinstein, who like myself had come to Oxford from Brooklyn via Columbia—I encountered a scholar who has more shrewd and original things to say about Marx than there are dissidents in the Soviet Union. Most of Marxology at Balliol, however, consisted in making votive verbal gestures before canonical texts, many of which appeared under the imprint of New Left Books. Some of the students, again, were quite serious and not yet released from critical thinking, but many were of less intellectual and political weight. And some really were quite enchanting, such as the Maoist from India fed by a Rhodes Scholarship. When Indira Gandhi declared the emergency he rushed back to get himself arrested, but no such luck.

Most of the student politics at Balliol took place outside the classroom and in the Junior Common Room, where rude and uninformed Marxists of one ilk vied with rude and uninformed Marxists of another for the draft of resolutions of which statesmen could be counted upon to take no notice. During my two years there, the students of Oxford were not once granted a real local issue, and instead turned their attention to national and global irritations. But, for better or worse, the ruling classes of England need not tremble: when these firebrands do not renounce such politics altogether for the bar or the civil service, they end up doing nothing more subversive than passing leaflets under doors for local Labour. The dour political writer Robert Moss should also sleep untroubled. It will not happen there.

Such political activity as I came in contact with usually had to do with the Third World and the Middle East. The steadfast and somewhat exclusive solidarity of Third World students at Oxford was poignantly explained to me in part by an Indian friend from Columbia, who had in England for the first time known verbal and even physical abuse. Over beer one evening he told me that he now understood more about what

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had shaped a large part of my own political sensibility, the fate of the Jews in this century. And that was a political sensibility which does not play very well in Oxford these days, nor—judging by this year's concerted attempts by Arab student groups to have student unions across England condemn Zionism as racism—at other British universities either.

I am saddened to recall that with a number of fellow students, not all of them Arab, my Zionism made cordiality impossible, although with one neighbor of the Left, a Greek-Cypriot economist, I enjoyed stimulating, if tense, political talk as well as warm friendship. I am more saddened to recall the general quality of discussion about the Middle East that I came across in Oxford. At one public meeting of the Arab Society—always at dear old Balliol—the audience was edified to learn that the most enlightened country in the Middle East is Syria. It is difficult to argue with anybody who believes that, but intrepidly I proposed Iraq.

One evening's debate at the Oxford Union stands out especially in my memory. The resolution put before the packed house was that the state of Israel should be dismantled and replaced by a secular, democratic state of Palestine. For the Palestinians there spoke Said Hamammi, London representative of the PLO, who seemed a reasonable man not entirely comfortable with the rhetoric to which he was forced to resort. The Union asked Jacob Talmon, the eminent Israeli historian then in Oxford for the year, to speak for the other side. Professor Talmon replied that the next time the Oxford Union wanted a self-respecting Israeli to appear in their forum they would do best to put the subject differently. Eventually the Union came up with (God knows why) Bryan Magee, MP, the noted British philosophy-taster. Magee opened his defense of Israel by conceding that Israel was in fact the last great creation of nineteenth-century imperialism—an inauspicious start, I thought. Soon came his uncanny conclusion. Turning dramatically to Hamammi, Magee pleaded that the PLO must refrain from blowing up Israeli school buses and other such activities because they simply will not work. Apparently what Magee found repugnant about terrorism was its inefficacy; not too many people present took exception to such an argument, either. Next the student debaters rose, each expensively attired and hungry for Union office, adroitly to prove their wit and oratorical skills and, by the by, to arbitrate the fate of peoples. Finally the house cast its vote against the resolution by a narrow margin, which looked good in the morning papers.

Trips to London furnished little relief. The Arab presence had become a formidable and, for me, depressing factor in the political and economic life of the city. Parts of London—Knightsbridge, for in-

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stance—had been quite transformed. In a Bally shop on Sloane Street (Balzac says that a student is someone who can afford only luxuries) the proprietor told me that I was his first customer in almost half a year who was not an Arab. Estate agents I met reported that last year virtually all deals for property that were closed for more than a certain not-very-high figure were with Arabs; the coffers they brought with them to London's better gambling tables, and sometimes left there, were legendary. I must say that the fruits of some of this money even I enjoyed. Last year's month-long Festival of Islam included an eye-opening exhibition of Islamic art and, at the British Museum, a show of illuminated Korans among which must have been some of the most ravishing books in the world.

At Oxford there was no such ostentation, although ample funds were clearly available for Arab academic, cultural, and political programs. I was informed that the government of Kuwait had approached St. Antony's College with an offer of one million pounds to establish a center for the study of Kuwaiti culture. The sagacious fellows of that remarkable institution declined, though they did later toy with the idea of a boycott of Jaffa oranges. Still, nobody in London or Oxford seemed too worried about the swelling financial clout of the Arabs. Many appeared content rather to batten upon the immediate infusions of cash, and a great number fretted instead about the likely impact upon their lives of the helpless Asian immigrants pouring into Britain each year. It struck me then that if it was foreign influence the British feared, they would do better to monitor, not Asia, but Arabia; no increase in Pakistani groceries will be quite as hazardous as the hold the Arabs already have on the city of London. But it was not immigration some people could not tolerate; it was poverty.

Very dispiriting, too, was the gradual and almost imperceptible acclimation of London to the detritus of urban life. I do not know whether the crime rate in London had significantly gone up, but the indignation of its citizens upon hearing more regularly of murder and rape appeared to have significantly gone down. (It is worth noting, however, that in this year's elections in London the National Front, a militant right-wing group that frankly advocates racial violence, won 119,000 votes and more seats than the Liberals.) London was strikingly more jaded when I left than when I arrived. Perhaps it was only because by the time I left I knew more of the city than a tourist would; and the constitutional elegance of the place had by no means disappeared. It had, however, faltered appreciably. Gone from its streets was the imperturbable feeling of excellence—of being a cut above—for which I had prized it. The IRA had a lot to do with London's uncertainties. For a time we anxiously avoided passing near mailboxes on our visits there,

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and dinner in Mayfair was out of the question for reasons more sinister than the prices on the menu. London was besieged, and wretched. Even in remote Oxford's market, notices went up warning people about abandoned parcels.

My years in England were in many ways a political education. Probably like many Americans, I arrived assuming that anything that matters for the state of the world originates in Washington, Moscow, and Peking. And of course there is no denying that since World War II the real power of Europe to determine its own destiny has been fractured. But I gained in England—and on the Continent, the ferry to France being the price of a textbook—a vivid sense of Europe as a complex community of reversals and aspirations which, however local and ungermane to the pulse of the planet, still animated millions of people and a variety of fetching national cultures. My reinvigorated respect for the fate of these nations was, however, sometimes a thankless attainment; there were occasions when Kissinger's paternalism or neglect almost completely ruined my fun. This happened regularly, for example, in a Greek restaurant on London's bountiful Charlotte Street, where, as soon as I opened my Yankee mouth, the prices went up, the service slowed down, and the portions all but disappeared. But the *taramasalata* alone was worth the abuse, and I kept going back for more.

Two things I should clarify. The first is that my distaste for politics on the Left was born, not of any predilection for alternatives on the Right, but of an unshakable disappointment that a political persuasion so allegedly moved by human misery could be so consistently blind to so much of it. I am aware that the Right, particularly in England, had little such compassion to lose. And at Oxford, even more insufferable than the local chapter of what Bernard Levin calls the Stalin-Possibly-Erred Society, was the company of some of its young upper class trying frantically and without success to stifle with cravats its terrible ennui. Everything Monty Python says about these people is true, but a lot less funny.

The second is the reason why Harold Macmillan was sitting there in the lodge. He was waiting while the real porter went to fetch him a cab; he was there at all because he is still attached to Balliol in some honorary capacity; and he knew nothing whatever about the buses of Oxford.

Unlike Cambridge—where, once its students have gone down, brush may as well be blowing through its precious, empty streets—Oxford is a bustling market town less than half of whose population hails from its university. Close by, too, are the Cowley car works, an industrial presence that makes itself felt keenly and continuously. Alongside the Ox-

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ford of the high tables and the gowns, then, lies another, more rugged Oxford, closer to earth and certainly to England. My happiest hours were spent in this other Oxford, in a dank little house on regular, radiant Boulter Street.

The passage is swift. The other Oxford begins immediately beyond Magdalen Bridge, whose dauntless drunkards give notice that a change is about to take place. (And in northwest Oxford as well, in a somewhat seedy area called Jericho, whither I would often cycle for films, curries, and the best jukebox in town.) No masterworks by Wren or Hawksmoor here, just narrow streets of low brick houses before which sturdy, sighing ladies busy with their meager gardens smile kindly at strangers passing by. No more *entrecôte* or quiche either, but fish and chips tasting all the better for the newspapers in which they come wrapped, always Rupert Murdoch's. I wonder what fish and chips would taste like picked out of the *New Statesman*.

In these small houses—now quaint, now squalid—live workers and their families. Among these workers, *mutatis mutandis*, must be numbered also some of Oxford's dons. For many, the blandishments of tenure at Oxford end brusquely outside the college gate; the salaries they take home are barely adequate to free a family from worries, and the teaching by which they earn those salaries is so time consuming and mechanical that little opportunity and energy remain for their own work—which is one reason why many of Oxford's academics have published so little. Another reason is that the security of the appointment itself sometimes lulls the brain and robs these achievers of the incentive to keep plugging.

Here also live some students, usually graduates, for whom no quarters could be found in college—in some cases quite a welcome dispensation. Some of the inhabitants of this Oxford, including a disquieting number of university alumni, live on the dole, which in the best of times was fourteen pounds a week. By American standards, rents were low—for twenty-four pounds a week one could keep a house and yard—as were the fitful prices of food. Electricity has been rather more of a drain, as has petrol. But a splendid Indian meal (rule, Britannia) can still be had for a pound.

The amusements of this Oxford are simple but lively, more or less the opposite of those in the other Oxford. The athletic rituals and corporate lunacy of the soccer matches would intrigue any observer who could survive the pandemonium. More controlled but no less passionate were the long evenings at the pubs, which offered their customers a wide variety of tepid beers and indoor games. A public hazard at darts, I soon found my metier at bar football, in which I invested great amounts of concentration and coins. Unfortunately I discovered bar billiards late in

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my Oxford career. Just as I was becoming rather promising at that game of skill, a disarming Jamaican named Nero walked into the pub and wiped the table with us all.

But this Oxford was not all provincial peace and diversion. There was grim poverty here, and congestion and unemployment and small crime. For some reason, the students on the other side of Magdalen Bridge never saw fit to agitate against these blemishes in their midst, or more generally against the grievous state of the social services in many portions of the realm. Sometimes, and usually when the footballs were flying, the streets surrendered to the rampages of a peculiarly British and extremely distasteful kind of thug—street-fighting men who make Mick Jagger look like Dante Gabriel Rossetti. Skinheads have not disappeared from England; they have only grown hair. On such occasions—and on Guy Fawkes Night, which local custom decreed to be open season on members of the university—I made sure to have an essay due the next day.

Beyond this Oxford and the other there awaited sweet respite from both. The environs of Oxford are not as dramatic as other parts of England; they are less dark and wild than the north, less grand and beckoning than the south. But these tremulous, modest, delicately undulating hills possess a serene and subtle beauty of their own. Swathed in summer light, sudden patches of yellow blinding the eye where the mustard has blossomed, aimless roads calmly winding past perdurable stone churches and through guileless old villages—these were the local and unlikely havens to which I journeyed with friends, anxieties, and bottles of wine. At Minster Lovell the proud ruins of a medieval abbey house, in December so spectral in the heavy gray fogs, coddled us in lazy June. At Garsington we dodged the urbane ghosts of Lady Ottoline and the gang, and trudged like children through sprawling fields of flowers, hay, and dung, laughing at each other and at the way the cows stared at us. At Burford we pillaged the antiquarian bookshops and fled into the lush Cotswolds.

I travel to lose illusions, because the only way effectively to disabuse oneself of the world is to see it. Of Oxford I was eventually disabused. Its inflated social and intellectual protocol and its besotted lower regions were enough to dispel the myth of the place. But, disenchanted, I found there new enchantments, unsought and undeceiving. To Oxford I owe beauty, ideas, and commitments. The beauty I can only recall; the ideas still clutter my desk; the commitments fill the mails and trail off into the future. Such are the fortunes of a graduate student.

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Nadia Boulanger

SUZANNE R. HOOVER

Twenty-one years ago, when I went to France to study music with Nadia Boulanger, she was almost seventy. Although her face was lined, her hair white, and her low voice somewhat shaky, she was still strong—still, obviously, at the height of her extraordinary powers. My year with her began after my graduation from college in 1956, when I arrived at the American summer school of music and fine arts at Fontainebleau, an hour's drive southeast of Paris. There the Conservatoire Américain, founded by Walter Damrosch in 1921, holds its classes in the faded, damp, rambling, yet sumptuous palace, the present form of which was begun by François I. (Some indefinable *tristesse* that hangs about the palace prepares one for the discovery that it has been the scene of several portentous reversals: the revocation of the Edict of Nantes by Louis XIV in 1685; the abdication of Napoleon in April 1814 in the magnificent Cour du Cheval Blanc, with the baroque horseshoe staircase, where he bade farewell to his Old Guard before setting off for Elba; and Hitler's celebration, in 1940, of the fall of France.) We students were domiciled, dormitory style, in nearby hotels. Mlle Boulanger, whom the French have long treasured as a national asset, had a summer apartment in the palace, where she lived with her male cat, Natasha, and received students for private lessons.

Mlle Boulanger had agreed to give me lessons in conducting at the summer conservatory, although there was no such offering at that time in the school catalog. In addition, I was to attend classes in solfège, harmonic analysis, conducting, and vocal ensemble. Recently I had an opportunity to read a number of long letters that I wrote from Fontainebleau about my studies. The immediacy and idiosyncrasy of their detail brought the summer back to me entire, uncorked all the still pungent essences of those days. Once again I heard the robust and hopeful cacophony of student-made music issuing simultaneously from dozens of lesson rooms and studios, floating out from the palace to the formal gardens where I often studied, and mingling there with the landscape gardener's timeless, classical harmonies. Above all, those letters revived in me the exhilarating awareness of a specialized but close relationship between two very different people: a great and vigorous old woman who arose each day freshly to the age-old combat between darkness and light, and myself as a young woman. In the first of my letters I tried to capture some early impressions:

"You want to know what N. B. is like and how she teaches? I will try to give you an idea, if you will remember that she is difficult to describe calmly and succinctly. She is thin—beautiful, wise old face—her body unexpectedly energetic, moving brusquely and strongly. Large, powerful hands. She is usually dressed in a plain but elegantly tailored gray walking suit, one wide lapel of which bears the tiny carbuncle-rosette of the *Lègion d'honneur*. Effect of classic simplicity. She speaks near-perfect English, with a heavy accent, of course.

"When she addresses a class, she cannot remain serious for long: her temptation is laughter. At the same time, she is a fervent Catholic for whom all aesthetic questions are ultimately, mysteriously, religious ones. Warm, direct, loquacious—I might say garrulous—can talk one under the table. Thinks

SUZANNE R. HOOVER is a member of the literature faculty at Sarah Lawrence College. She has published numerous essays and reviews on the subject of English romanticism.

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twice as fast as anyone I've ever known; is equally the master of the abstrusest technique and the subtlest critical judgment, seeming capable of miracles of both. Aristocratic. I have had one private lesson with her—the next is tomorrow. She assigned me Stravinsky's *Dumbarton Oaks Concerto*, saying she knows it is too difficult for me. We were meant to have forty-five minutes together, but it turned into an hour and some more, during which time I don't think I said more than ten words."

I was too busy to describe the occasion fully in a letter, but I remember it well enough. I had entered her apartment in fear and trembling, as if descending alone in a diving bell to the ocean floor. Seeing me, Mlle Boulanger came forward and drew me into the room warmly, with a smile of real pleasure, as a friend—and then subjected me to a thirty-minute lecture on the absurdity of being shy. She interrupted herself at last, to ask whether I would, please, conduct something for her. As I stood up and she sank down attentively into a Louis XIV armchair, I realized suddenly that the next few minutes were going to be remarkably quiet. Well, then, I thought, I'll do something quiet.

"The second movement of the Brahms *Requiem*," I offered. (I had been studying it.) She nodded approval.

I raised my arm and began to inscribe in the air the spiritual shape of that music—a monumental funeral march, purified of anguish, that accepts, if sorrowfully, the knowledge that "all flesh is grass," as it looks forward with a lightening of the heart to eternal life.

After one full measure, my audience stopped me to inquire why I was using my left hand. I am left-handed, I explained. A pause, then an impatient gesture dismissing such a nonmusical, mechanical matter.

"Very well! It will confuse them for two minutes, but they will get used to it. Continue, please."

I began once more, in a deeply concentrated effort to weave into one fabric both the tender hopefulness of the music and its resigned sadness. Minutes passed in silence while I conducted; she watched me, and we both listened to the same inner music. When it was over she seemed pleased, but took time only to admire the beat. It was strong, clean, and clear, she told me. Yes, she liked it very much.

In her later years, Nadia Boulanger has been known most widely as a teacher—of piano, organ, harmony, and especially composition. She is often described as the greatest music teacher of this century, still fully active today as she approaches her ninetieth birthday. Through her hundreds of American pupils, including Aaron Copland, Roger Sessions, Walter Piston, Virgil Thomson, David Diamond, Elliott Carter, and Roy Harris, and the thousands of pupils of those pupils, perhaps the strongest single influence on the quality of modern American music has been Nadia Boulanger's supreme sensibility. Earlier, however, her career was divided between performance and teaching.

It was in her conducting that Mlle Boulanger had made her greatest contribution as a performer, and because at that time I hoped to become a conductor, it was this that had drawn me to her. Many who have followed the unhappy story of Antonia Brico's struggle to be accepted as a conductor may not be aware that Nadia Boulanger was the first woman to conduct the Paris Philharmonic, the Royal Philharmonic in London, the New York Philharmonic, the Boston Symphony Orchestra, and the Philadelphia Orchestra—all before World War II.

That this record created as little stir as it did was probably due to her remarkable selflessness. Indeed, the most impressive characteristic of Nadia Boulanger as a conductor has been her sensitive use of herself as an instrument, a vehicle, for the music—never the other way around. The reviewer for the *New York Times* of February 12, 1939, made this point forcibly when describing a concert given by Boulanger at Carnegie Hall with the Philharmonic Orchestra, in which she participated in every selection either as conductor, pianist, organist, or choral director:

> In whatever capacity she exhibited her talents this amazing artist moved with a like authority, profound understanding and skill. . . . When Mlle Boulanger, a nobly dignified but unassuming figure in white, first came on the stage she was greeted by the first of the many ovations that thereafter followed her endeavors throughout the evening. She conducted without baton, but nevertheless her every gesture was so sharply defined

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and significant that the results were admirable in precision, clearness of outline and tonal balance. She was completely the master of style in all that she touched, and her insight into the character and needs of the highly contrasted works she set forth was unfailingly deep and penetrating. . . .

But despite Mlle Boulanger's amazing musicianship elsewhere, it was as director of her vocal group that she made a most unforgettable impression. For lack of space it is impossible to go into details here concerning the manifold beauties of the readings she and her splendid little aggregation of singers gave to the several great masterpieces of Monteverdi which formed the highlight of the evening's contributions. All those present will long remember the flowing line, the sensitive feeling and evocation of mood and atmosphere produced in such exquisite creations of the seventeenth-century master as the "Lamento della Ninfa" and the madrigal, "Lasciatemi morire."

Such was the example—and standard—that Nadia Boulanger set for her students. While Americans discovered her in the early twenties, more recently many of her students have come from Eastern Europe, the Near East, and Scandinavia. The reason is clear: her mission, as she herself seems to have understood it, has been to serve as midwife to cultures attempting to bring to birth a rigorous native music. She seemed to know a student's own idiom before he knew it consciously himself and to know, before he did, what he could stretch himself to accomplish. Her quiet confidence in each of us enabled us continually to outdo ourselves. This was the miracle that unfolded from my letters.

For my second lesson I was uncertain exactly what to prepare. Mlle Boulanger had casually prescribed the *Dumbarton Oaks Concerto*, but my ability to realize even an uncomplicated score at the piano was still rather frail. I was just beginning to be able to find my way around in the special clefs; I was a poor sight reader and an indifferent pianist. When the Stravinsky score arrived from Paris I was deeply impressed by its difficulty. I began to analyze it, to see how it is built: the first movement in so many sections, exposition goes to here, development (with fugal subject), reprise, and so on. I studied its intricate rhythmic patterns. My next letter, written several weeks later, continues the story.

"When I arrived for my second lesson N. B. greeted me, settled herself at the piano, said 'OK—begin!' and waited for my upbeat. Consider the journey on which we were about to embark. Only ten measures out from shore one loses all sight of land: the time signature changes with virtually every measure for the next thirty measures! I stumbled. We stopped, repeated. I caught on. We went along for many pages.

" 'So—I find it goes very well. You will do it well. I thought at first we use it just for exercise, but you do it perfectly easily.'

"For the next lesson I had practiced beating it clearly. N. B. invited me to sit beside her at the piano on her left—I knew that meant trouble. The plan, she explained, was to work with just one (very complex) measure. She would play the cello part for that measure and I the double bass. At the end of the measure we were to begin it again in time, she playing the viola, I the cello; then she the violin, I the viola, and so on. (The French horns were resting.) Just after I came in with the (B-flat) clarinet, I broke down.

" 'So—what is the matter? You are not sure of the clef? Well, my dear child, don't look so serious. Laugh! Yes, you must laugh! But can't you see, it's *grotesque* that you should not be able to do this? Very well, don't worry about it. You will learn it, that's all.'

"And then a casual remark to the effect that I should learn the concerto by heart. And warmly: 'Good-bye. Please. Good-bye, my dear child.' (She thinks the 'please' here is very polite.) So for the next lesson I decided to memorize the outlines of the first movement—fifteen pages of score."

My life now became rather metronomic in the incessant alternation between work in my small studio at the practice piano and all the other essential claims on my time, such as classes, meals, letter writing, and an occasional walk for exercise in the town or in the palace gardens designed for Louis XIV by Le Vau. The hours at the piano were filled with the righteous joys of hard work, and the intoxication of total immersion in a work of genius.

As a whole, the E-flat chamber concerto, like its creator, is both debonair and profound. In its vigor and closely knit *concerto grosso* style, it takes some inspiration from Bach's Brandenburg Concertos, as Stravinsky himself has said. Like the Brandenburgs, it

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often breaks out irresistibly into dance, as in the long, final, haunting, bolerolike section of the last movement. The overall feeling of the work is curiously touching, because it was written during the last stages of the fatal illness of Stravinsky's daughter Mika—by his own account "perhaps the most difficult period" of his life—yet it celebrates the triumph of life in its spontaneity, variety, and rhythmic, even sexual, vitality.

The first movement is lively and open, bustling and full. Both its beginning and its conclusion suggest the joyous ringing of bells, until the last few measures when the ringing breaks off and the music turns suddenly inward, then stops, suspended.

By contrast, the second movement seems rather intimate. It begins with a graceful, buoyantly witty, ingenuous, polymorphous-perverse motif, delicately reminding one of childhood, of resourcefulness and vulnerability. This free and inquisitive mood is overtaken at last by some strange spell or enchantment. Now the music, darkening, verges on the programmatic, suggesting, say, a scene in a ballet in which Beauty is lost in the forest. But just before uneasiness can modulate to fear, the original whimsical theme returns, this time in a sophisticated, mock-sentimental guise.

The last movement turns resolutely outward again, and has a fugal episode, like the first. But it is newly restless and driving, with troubling undercurrents of obsession.

The specific and visible musical body inhabited by these ideas is always ingenious and beautiful. Each instrumental part has its own life, its own speech, and yet reflects the large design. The basic musical materials of a few intervalic and rhythmic patterns are played with kaleidoscopically, like the smallest elements of a genetic code. My first task was to learn the design. The letter continues:

"I assigned myself three pages a day of the first movement. Late in the week I had to switch lesson time with someone, which gave me six days instead of seven. When I arrived at the lesson, N. B. asked, teasing, 'Do you know it by heart?'

" 'I think so—I hope so.'

" 'You do?' (Surprised.)

" 'May I play?' I asked.

" 'But yes, of course! *Superbe!*'

"I sat down at the piano—she sat right next to me. I played it through without the score, following the most important musical line, wherever it went, with my right hand. With my left hand I beat the measures as I played. N. B. had turned to face me, watching me like a hawk. In my peripheral vision I caught sight of her right elbow twitching in rhythm as I played. Now and then she shouted, 'The head! The head! No head!'

"When I had finished, she said gravely, 'But this is extraordinary—really quite remarkable. I tell you frankly I didn't think you could do this. It took courage. It was hard to do.'

" 'Now,' she said, motioning me to exchange seats with her, 'you must arrive to know what is going on in every part.'

"She began to play the 'inner' parts, shouting little offbeat pizzicati—'Hup! tup! twip!'—and the clarinet entrance, offbeat, a thirty-second note arpeggio, with her tongue, as if demented, and shouting 'Ta-a, ta-a' ('You must arrive to feel these syncopations'), and finally, at the climax of the section, playing with both hands, furiously, tapping her feet, shouting, she turned to me and punched me in the arm exactly on the strongest pulse, nearly knocking me off my chair—and continued with the decrescendo without missing a beat. *This* is what I must arrive to feel, she said. She is delighted, so pleased, it goes well, such a progress, et cetera."

The next days were spent learning the first movement inside out and backwards. Often, after working for a while at my piano, I took a box lunch from the hotel and struck out for the open fields beyond the palace gardens, where I passed the rest of the day lying on the bank of a canal built by Henri IV, studying my score and gingerly sharing my meal with the yellow jackets. Sometimes I worked with friends at an outside table at one of the cafés. The letter goes on:

"When I arrived for my next lesson, N. B. asked, 'What can you do?'

" 'I'll conduct the first movement for you and try to make sense of it.'

" 'Oh, very good.' She seated herself at the piano, waited for my 'departure,' and we were off—she playing, I conducting her without the score. (She herself conducted the first performance of the concerto in 1938 in Washington, D.C. She knows it by heart; indeed, she seems to have a note-perfect memory of

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practically every piece of music ever written.)

"The first movement is not only fast and energetic, but is also marked by the constant exiting and reentering of instrumental voices, and therefore requires constant cuing by the conductor. N. B. played not the most important melody line but only the fearfully syncopated accompanying parts, to confuse me. A couple of times I broke down under this treatment, but we plunged right in again and before long we had come to the end. More encouragement, and an assignment to begin the second movement.

"While not so heartily written as the first, the second movement is really more difficult because more subtle. A tiny particle of musical idea is delicately transformed, developed, changed minutely again and again. I memorized its outlines for my next lesson. I think N. B. knew I would.

" 'Do you know the second movement—a little bit?'

" 'I think so.'

" 'But not to play?'

" 'Yes, to play.'

" 'Oh, *superbe!*'

"I played it from memory with my right hand, beating with my left. This time she followed the score closely as I played and, sure enough, I had made a few reading errors, which she corrected. Once she stopped me to say, 'No, that is B natural, not B flat. He changed it back and forth many times, but I think his last feeling about it is B natural. Change it in your score.' (N. B. and Stravinsky are very close friends.)

"Again she seemed surprised and gratified. But the phrasing as I had played it was all wrong. It is light, proud, supple music. 'I know you will never be *coquette*, but move lightly, curtsy.' And she started to tell stories. How Paderewski had a way of helping a woman on with her coat that made her feel like a mother, a daughter, a sister, and a wife all at once. How one time Stravinsky, fallen in a heap on a chair after a concert, exhausted, had jumped up and clicked his heels when his mother entered the room, and remained standing for over an hour because she had forgotten to invite him to sit down. That a man kissing a woman's hand is a vulgar gesture when not done well—he must know not really to touch her hand with his lips—and if done well it is charming and elegant. Et cetera. She bade me a warm and rather excited good-bye.

" 'You will learn it all, I think. You will finish it this summer!' "

The summer was at its height. On Bastille Day I had been invited by a chambermaid who worked in my hotel, and who had befriended me, to join her and her family for the festivities. After a wonderful dinner, we had gone out singing and dancing through the town, which was in a state of carnival. I was beginning to feel a strong love for my new home. I had already experienced two of the most characteristic virtues of the French: their passion for excellence and their chivalrous hospitality.

By midsummer my letters had branched out to describe the classes as well as my private lessons.

"N. B. teaches the same thing in all the classes, taking the day's material as a *point d'appui* for inculcating the values she considers important.

"But conducting class is a little different. There she is all business, improvising impossible exercises for us that employ both hands and, often, both feet—and even speech. The idea is to practice the impossible until you can do it, and then nothing will ever again be difficult. Beat two while you count five; beat two while you count five and tap three. Using a distressingly uninfectious rhythmic pattern from Stravinsky's *Histoire du Soldat*, she has had us speak the pattern repeatedly while tapping every quarter note with one hand and beating the irregular measures with the other hand. Exercises in canon she considers particularly useful for attaining the independence of parts in one's mind, and for concentration. Once she asked Peter, a shy but good-humored Danish composer, to go to the piano and play 'In Dulci Jubilo,' first with one hand, then in canon with two hands, then singing, in three-part canon!

"Both in conducting class and vocal ensemble, N. B. discusses in detail the problem of the flow of the music. As the greatest danger is that of the deadening of the motion on the first beat, 'one must arrive to feel' the first beat as a springboard to the second. In Mozart, for instance, when there is an eighth-note rhythm, rest-ta-ta-ta, rest-ta-ta-ta, you may want to accent the first beat (that is, the

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rest), but then all will be lost. It is, rather, the first *played* note of the figure that must be accented slightly, and must not be late—if anything, make it a little too soon. Nor is the last beat ever long enough.

"Harmonic analysis class is similarly given over to fundamentals. While N. B.'s method here is quite traditional, her concepts are large. For example, she thinks in terms of modulation, or change of key, but places the pivotal point very early and understands the change as beginning far in advance of its accomplishment. As she says, 'When I first decide to go to Warsaw I am already a little bit there. [She happens to be going to Warsaw soon.] When I arrive and look back, I see that my journey really began when I decided I would go to Warsaw.'

"She started the first class by playing the first Prelude of the *Well-Tempered Clavier* as a progression of chords and asking, 'What is this?' When none of the answers suited, she said, 'It is a cadence. And so is a movement of a symphony. The genius, the style—that we cannot discuss here. We are here to discover the common materials and the ways they have been organized.'

"On the varieties of organization, especially nonharmonic organization, N. B. has said a great deal. When discussing melodic structure she instances Bach, whose asymmetrical melodic patterns have an unusual degree of vitality and motivity. She has remarked on the parallelism and registration of chords in Debussy that generate pattern and organization nonharmonically. Registration in general—the deployment of voices over the 'keyboard' (often in class she interrupts herself to call attention to *la disposition de cet accord*)—she considers a key stylistic element, used most strikingly, perhaps, in Beethoven's late piano works.

"And always much moral exhortation—as, for example, genius without character is nothing; character without genius is nearly everything. Untiringly, day after day, she preaches discipline and devotion. Make yourself do exercises in all things—such as harmonic progressions in every key at lightning speed, as the old masters of improvisation and figuration trained themselves to do. One must know by reflex action, without knowing that one knows, the name of every note one hears."

At one of my last lessons of the summer, Mlle Boulanger asked me whether I would be able to continue my studies with her in Paris during the coming year. My next letter expressed my joy and concluded the account of the summer. There were only two more lessons.

"By virtue of the natural rhythm of things, I now turned to the last movement of what has come to seem like my own private concerto. As usual, nothing specific had been assigned—it was all up to me, and I knew what had to be done. I began to be—if it can be measured so minutely—a little more casual about memorizing. I learned the last movement in three or four days, although it is longer than the others.

"As before, I played with one hand while beating with the other. N. B. sat beside me, occasionally plinking one of the upper parts in the top octave or, leaning over me, ripping into the middle register with both hands and almost dislodging me from my seat—all while I played. I was sometimes knocked off balance figuratively, if not actually, by these sudden duets; and then a laugh from her, a simple nod, or a sotto voce '*Courage!*' would send me on. Where my memory slipped, hers was always sure.

"The last lesson really rounded off the summer for me. I had decided that I would like to conduct the whole work from beginning to end; we had never considered more than one movement at a time. I worked, therefore, on the continuity. When I arrived at the lesson, N. B. asked simply, 'What are you going to do?' I said I would like to play and beat the whole concerto from memory, at the piano. That was, of course, what she had hoped I would do. So away I went—no pauses, no interruptions, and a minimum of stumbling. N. B. unusually quiet throughout.

"When I had come to the end, rather fatigued by the effort of concentration, by the nervousness I confess I was feeling strongly, and by the demands of the music itself, alternately vigorous and delicate, she said, 'Well, and tell me—don't you feel good?' I nodded yes (good that it was over).

" 'This is excellent. *Superbe.* I have never thought that you can do this. You have done a maximum this summer. I am so glad, you see, that you are going to remain for the year. Will it be possible for you to stay with me

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even longer? Another year, perhaps?' I indicated that I could not say now, but that at any rate I did not think it would be impossible.

"'Well, and this is very good. I will see you soon in Paris, then. Meanwhile, have a good holiday, a good rest. Good-bye. Please.'"

Before that amazing summer ended, it held a special pleasure for me: the opportunity to see my teacher conduct in public. The town of Fontainebleau was to celebrate its patronal day of Saint Louis. According to her custom, Mlle Boulanger had prepared a musical mass to be performed by the conservatory students in the palace chapel, which at the appointed hour was filled to overflowing with townspeople and dignitaries. In one of my letters I described the occasion:

"We musicians, both chorus and instrumentalists, were crowded into the chapel's loft, a small balcony on one side of the nave that we shared with an eighteenth-century organ and some dormant bats on the floor. N. B. was with us, conducting, in her eternal gray suit and a large, floppy, black beret. Not too much contact with us—just enough; for the rest, slightly distant, as if at the same time listening for an answer, far off. Her religiosity is sometimes serene, sometimes spirited. This particular morning it was serene.

"At the end of the Sanctus I folded my music and then looked up again. N. B. had disappeared. Alarmed, I looked around, until I realized that she had dropped to her knees in prayer. She was the only one of a number of Catholics in the loft who had knelt to pray. When the little bell rang, she bounded to her feet again.

"The musical climax of the service was the *Salve Regina* of Fauré (who had been Nadia Boulanger's teacher), a quietly ravishing piece for soprano solo and instruments. N. B. was conducting it minimally—it more or less carries itself—left hand resting elegantly on her hip, right hand making small arabesques in three-quarter time, when suddenly the soprano lost her place. An expression of despair spread over the singer's face. One understood instantly its cause: the sensation of having let N. B. down.

"Still beating, N. B. took a step to the right, toward the girl. Then, smiling serenely, she took up the beat with her left hand as she laid her right hand gently on the soprano's shoulder and sang the music softly to her as it went along. The girl looked into N. B.'s eyes, smiled back, and in a moment or two resumed singing and continued without the score to the end."

During the next months I saw a great deal more of Nadia Boulanger, and later had the good fortune to be able to see her conduct at Carnegie Hall on her seventy-fifth birthday. And yet it is this memory of her in the chapel, conducting—so totally given to the music and the moment, and at the same time so close to her students—that will remain with me longest.

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In the Meadow

James Baker Hall

Vapors rise from the lush grass
and from the glossy hides
of black cattle grazing.
The sounds of grass tearing;
of insects; of water rushing.
Flecks of light and butterflies
are in sway over the meadow,
aster, goldenrod, Queen Anne's lace,
and she is afloat there, barefoot,
in a reverie, naming the three
children she wants to bear.
A black steer lifts his head
and chews and stares at her;
and then stares at me playing
with a branch in the creek.

The quivers of the swift current
travel up the leafy branch & dance
through me, dance through my body
like her love.
Hawks glide
around the hilltop, in the sway
of something out of sight.
I give her
the branch and with my hand on hers
we play with the current until exactly
what I felt is there—and tell her
that is how she feels to me
when she is in her time.
She smiles,
and shuts her eyes, and concentrates.
And through my hand on hers I feel

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her feeling what it feels like
for me to feel her.
Where am I then?
And where is she?
We are of the water
rushing, which is of the leafy branch,
which is of us, and we are of the cattle,
and of the sounds of grass tearing, and
of the hawks and the wild flowers, and
of the vapors rising, and all of it,
all of us, are in the sway of something
out of sight.

Gone are the days of my mother and of all women.
Gone are the days of my father and of all men.
Gone are the days, the hours, the minutes.
Gone the need for forgiveness.
Gone need.
Gone me.
Gone her.

We are not dancing,
we are being danced.
It is now, &
ever shall be.

✪ JAMES BAKER HALL is an associate professor in the department of English and director of creative writing at the University of Kentucky. He is currently working on two books of poetry and a novel.

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The Words

having formed a more (nearly) perfect
union
are tired
have gathered around the fire
to say
no more
have had it
the words eat biscuits
and hyacinths
are tired
do not talk
want only to sleep
want rest beyond a semicolon;
have a headache
have a period
are not responsible for what
they do not say
have voted to quit
to strike
to abstain and refrain
have taken counsel together against
the enemy
are no longer satisfied to be objects
direct or indirect

have for a half a year
made no graven images
just as it says in the Book
made a long time ago
when words were still working

but then you never could hire one cheap

JOHN STONE

JOHN STONE is a physician in Atlanta, where he teaches at Emory University School of Medicine. His first book of poems is *The Smell of Matches.*

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Lost (and Found) Cities

MOODY E. PRIOR

The United States is notoriously the land of change in the name of improvement and progress; but today, all across the country, in small towns and in great cities, there are indications of a growing interest in the preservation and restoration of buildings and other objects that embody the history and retain the style of an earlier era. The two impulses are at odds with one another. Although cities have taken to assigning landmark status to buildings of special interest as a way of discouraging hasty or ill-considered demolition, it is generally acknowledged that often even the most energetic efforts to stay the needless destruction of the best of our cities' past usually fail.

Two recent illustrated books effectively present this view and handsomely document the damage—Nathan Silver's *Lost New York* (1967) and David Lowe's *Lost Chicago* (1975). The two books are about equal in merit and interest, but Lowe's is the more dramatic by virtue of the subject. Chicago is the epitome of the American commercial and industrial city, and its story leaves the impression of a logically ordered documentary that has been run too fast through the projector. In 1820, there was nothing but the second Fort Dearborn and a few houses built on marshland near a small river along the shore of Lake Michigan. By 1850, the settlement had a population of 30,000; twenty years later it had grown to 300,000 and was already a major inland port with an annual tonnage of 3,000,000. One British visitor in 1870 referred to Chicago as "the lightning city," and Richard Cobden told a friend, "See two things in the United States, if nothing else—Niagara and Chicago." A fascinating record of what the early Chicago looked like is preserved in a series of tinted lithographs collected in 1868 under the title *Chicago Illustrated*. The text that accompanies these illustrations reveals pride in the achievement and in the spirit that produced it. Of the Hough House hotel the comment reads, "This immense edifice is but in keeping with the greatness of all things to which the enterprise and energy of Chicago are applied." One boast was to prove ominous: "In the many municipal improvements in Chicago, there is no one particular which exceeds in value the progress in the fire department." Within three years, scarcely a single edifice pictured in this collection remained standing. The first Chicago was virtually destroyed by the fire of 1871.

No time was wasted on lamentations. The general attitude was summed up in a shack hastily put together from salvaged lumber for a real estate office, on which, as depicted in an illustration in *Harper's Weekly*, a sign was nailed: "All gone but Wife, Children, and ENERGY." No attempt was made simply to reconstruct what was destroyed. All the new buildings were conceived on a new scale and for a different kind of city, and, in fact, the old city was already an anachronism. The endpapers of *Lost Chicago* are a reproduction of a panoramic view of the first Chicago from a crayon drawing of 1853. In the foreground is a train on the Illinois Central tracks on pilings along the shore. "The train is important," Lowe comments. "It will bring new life, new business, new people, new money, but it will destroy the green and white Greek Revival city." In what slow and painful ways the railroads would have first strangled and

MOODY E. PRIOR is emeritus professor of English and former dean of the Graduate School at Northwestern University. He is the author of *The Language of Tragedy, Science and the Humanities*, and, most recently, *The Drama of Power: Studies in Shakespeare's History Plays*.

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then reshaped the city that was becoming the railroad center of America can only be guessed. The small city would in time have destroyed itself. The fire cleared the ground for a new beginning, and in characteristic fashion the city took advantage of it.

In the next fifty years, Chicago had grown to a metropolis of 2,700,000. "Nowhere is there such human voltage," declared an article in *Munsey's Magazine* in 1907. Such restless energy was fated to create, not conserve. The opportunity attracted a group of imaginative and talented engineers and architects who made Chicago the center of their work. "In little more than a decade," writes Carl W. Condit in *The Chicago School of Architecture*, "they invented and mastered the modern technique of riveted steel framing and were thus able to develop the office building, hotel, and apartment block as we know them today." In time they also revolutionized domestic architecture. They approached their work not merely as practical engineers and developers, but as social theorists and as artists. They created, and inspired their followers to create, a large number of original and historically important buildings that gave distinction and a striking appearance to the city and influenced the future shape of other cities. Now, one by one, the artifacts of this urban renaissance are disappearing, replaced by more up-to-date buildings or—the ultimate ignominy, as in the case of Sullivan's Garrick Theatre building—by parking lots. It is the loss of the Chicago that came into being in the fifty-odd years after the fire that Lowe displays in his book, in sorrow and sometimes in anger.

The history of Chicago does not raise confidence in the ability or willingness of the city to conserve and cherish its past. The creators of the original buildings of the second Chicago themselves seemed casual about their own creations. A surprising number of impressive new buildings were taken down and replaced within approximately twenty years of their completion—for example, Dankmar Adler's Central Music Hall, in which, Condit says, "lay the genesis of the great Auditorium building"; Holabird and Root's second Rand McNally building; Adler and Sullivan's Standard Club; and Sullivan's Chicago Cold Storage Exchange, built at a cost of $1,500,000 and demolished within eleven years. As Harold M. Mayer and Richard C. Wade observe in *Chicago: Growth of a Metropolis*, Chicago "was not only a place but a process." This, of course, could be said of all modern cities. To survive, cities must renew themselves, and renewal implies the displacement of the past. An older city dies in giving birth to a new. This process is much more rapid and spectacular in American cities than in the older cities on the Continent, and there are those who admire American cities for that very reason. *Lost New York* calls attention to Le Corbusier's admiration for New York, because, unlike Paris, it could be radically changed—"a city which will be replaced by another city." There is discernible, however, a reflective mood about our cities—a growing concern over what they have become, a resistance to continual feverish change, and a desire to preserve and honor the past, all signs of a new attitude.

It would be difficult, however, to imagine any circumstances in which the structures pictured in *Lost Chicago* and *Lost New York* could all have been saved; and anyone with serious hope of sparing those now threatened must face the fact that the many and recurrent pressures on our cities are at times intractable. Chief among these pressures are technological innovations—the invention of artillery, to cite the classic example, meant the end of the walled city. Modern commercial and industrial cities are especially vulnerable to technological innovations, partly because in recent times their effects have been so radical and partly because they occur with such rapidity. The railroads, which threatened the first Chicago and helped to make the second, later assisted in its unmaking by providing convenient transportation for the flight to the suburbs. The automobile has hastened this process, but that is the least of its many notorious effects as the most insidious and pervasive despoiler of cities. The effects of air travel, the most recent of revolutions in transportation, are not yet fully assessed, but they are conspicuously manifested in the demolition of the monumental central railroad stations that were prominent landmarks in our cities. No invention can be dismissed as too trivial to have profound consequences on the life and physical character of cities. On any given day around 1910, there would be in Chicago anywhere from fif-

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teen to twenty plays billed for downtown theaters; most of these no longer exist, victims of motion pictures. The movies took the entertainment once sought for in town to the neighborhoods. Now that television has taken it into the living room, some of the great baroque movie palaces, built mostly during the twenties, have been razed.

Rapid influxes of people constitute another disintegrating and destabilizing force in a settled city. During the early years of Chicago, the steadily increasing numbers of inhabitants, many of them foreigners, who came to the new raw community, were constructive rather than otherwise. Initially they produced areas of hovels and shacks, but these were the seeds of later solid structures. The Bridgeport district, home ground of the late Mayor Daley, was originally the camp of Irish immigrants who helped dig the Illinois-Michigan Canal.

The influx of new immigrants following the First World War was another matter. They came principally not from foreign lands, but from other sections of the country that had failed them. They were poor and they were not city-bred. They did not open up new areas of the city but invaded those already heavily settled, displacing older residents who left under pressure. Mayer and Wade estimate that "every week during the 1950s, three-and-a-half blocks changed from white to negro." In the interaction between these new residents and the city, race has been undeniably and unhappily a factor; but the somewhat similar effects of the smaller migration of Appalachian whites on the Uptown district of Chicago demonstrate that the essential elements are poverty, lack of appropriate skills, unfamiliarity with the problems of urban life, and, perhaps most important of all, the rate at which the new residents have flooded the city. The result has been creeping blight. One conspicuous physical effect of this has been the leveling of large areas where the decay had gone beyond repair, and the building of low-cost housing, some of which, especially the high-rise apartments, has not been much of a success. Seen strictly from the point of view of the physical aspect of the city, huge waves of new inhabitants are inimical to conservation and restoration. A small detail will illustrate. The Charnley house, the work of the firm of Adler and Sullivan and probably designed by Frank Lloyd Wright, is located in a stable area and is still occupied and in good condition; Sullivan's charming house on South Lake Park Avenue, designed for his brother and used for a while by him, was in an area that experienced a very rapid and total change in population, and, after being vandalized, was demolished.

Cities do not willfully leave themselves vulnerable to orderless growth. They make use of zoning ordinances, taxation, administrative authorities, and other devices to direct the impact of economic forces and of unexpected contingencies toward a rational idea of the city's form and purpose. And they engage in large-scale planning.

Chicago affords two well-known examples of comprehensive planning. The first was the creation, in the early 1890s, of Pullman, a model manufacturing town built under the direction of George M. Pullman. It was widely acclaimed and admired. Today everything of the original Pullman, except the houses, is either gone or in deterioration. Its very excellence as a complete, coherent design was its hidden flaw, since a change in any single element had to affect all the rest. Whereas Pullman was the result of an ideal plan that began with nothing more than empty marshland, the celebrated Burnham plan was designed to reshape an already large and flourishing city. Two organizations of Chicago businessmen, inspired by the beauty and order of the World's Columbian Exposition of 1893, conceived the idea of sponsoring a plan that would insure in the future an elegant, convenient, and orderly Chicago. The farsighted sponsors thought of more than economic and aesthetic advantages. "The physical and moral deterioration of the human race under bad conditions of city life is one of the great problems of the age," said a speaker at a dinner to promote the plan. "That city life is producing a physically and morally deficient life is apparent, especially in old cities where the process has gone on longer. Chicago's problem is to check this tendency before it has a fixed type of physical and moral inferiority."

The work was undertaken by Daniel Burnham, the chief designer of the Exposition, and was completed in 1909 and officially adopted by the city in 1910. The plan was energetically promoted. It was even studied in

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the city's elementary schools, with *Wacker's Manual of the Plan of Chicago* as a required text. It became the authority for a number of ambitious projects. One of its important provisions was the preservation and development of the lakefront—a goal the city has worked hard to achieve, with but few failures. But ironically, this very important characteristic feature of the city came about initially not because of Burnham's plan but because of the persistence of a single man, Montgomery Ward, who, beginning in 1890, brought four lawsuits against the city over a period of twenty years to compel the removal of buildings east of Michigan Avenue and to declare the area public land. Burnham extended this concept to cover the entire lakefront. The significance of Ward's foresight and Burnham's good sense can be appreciated by comparing Chicago's lakefront with that of Cleveland.

Burnham's plan has left its mark on the city in spite of resistance to it, but today's Chicago is very different in appearance from that depicted in Burnham's renderings. His ideal Chicago was a beaux-arts conception, handsome but placid and somewhat at odds with the architecture that created the second Chicago. But it established the idea that this commercial and industrial city could be orderly, beautiful, and humane, and could control its future usefulness and attractiveness. The first sentence schoolchildren read in the *Manual* sounded a note of confidence and belief in the future: "Chicago is destined to become the center of the modern world, if the opportunities in her reach are intelligently realized, and if the city can receive a sufficient supply of trained and enlightened citizens."

Compare this outlook with the title of an important book on urban planning by José Luis Sert published in 1942: *Can Our Cities Survive?* The answer to the question is yes, because they must, because they are the centers of civilization, but it is significant that the question was asked. The book was the product of many years of work by the Congrès Internationaux d'Architecture Moderne. Against the academic planning of the past it proposes a more scientific approach—"urban biology, or the study of the life of cities and of the living conditions within them." It provides fascinating analytical maps of modern cities based on aerial surveys and statistical studies, and makes a number of proposals for the reform of our cities. Among them is that housing should be built in clusters of large, even tall, apartment buildings, the groups to be separated for light and openness, and connected by high-speed highways for local transportation and for easy departure from the city on weekends (even the ideal city, it seems, must be fled periodically). A further justification of this arrangement is that it reduces the chance of direct hits on inhabitants by aerial bombing: three years after the book was published, the highly compact city of Hiroshima was obliterated by a single bomb. The study calls attention to the dangers of pollution, but it encourages the use of the automobile and assumes the continuous use of fossil fuel. It cannot be judged by these oversights. Comprehensive plans can be successful only to the extent that they anticipate the future correctly, and experience shows that in our time some of the most disintegrating forces have not been clearly foreseen. To Burnham's motto, "Make no little plans," should be added the phrase, "but make no unalterably rigid ones." Reflection on the nature and fate of great plans also suggests that conservationists who hope urban planning will help protect the best of the past are probably overly sanguine. Planners are valuable in analyzing the ills and failings of a city and in projecting the future in the light of some improved image of what the city can be, but preservation is normally secondary. The criterion of what is to survive has to be whatever does not stand in the way of the plan. It is usually the bulldozer that must lead the way to the New Jerusalem.

Considering the complexity of the problem, especially in an industrial and nonauthoritarian society, it is a wonder anything survives in our cities today except as a matter of rare luck. Even under present conditions, however, certain kinds of buildings seem more likely to emerge intact than others. Public buildings, especially those that have acquired important historic and patriotic associations, have an excellent chance. It is hard to imagine what could bring about the demolition of the White House or the Capitol in Washington, D.C. But the huge domed Federal Building in Chicago, built in 1905 on an impressive scale, came down in 1966; it had not acquired sufficient venerability and

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historic meaning in a city that had not yet begun to feel old. The Water Tower, on the other hand, an architectural oddity, is a secular shrine. It survived the fire of 1871 and stands in the midst of the traffic on North Michigan Avenue, a reminder of a vanished era and a vanished city, and even in Chicago there is enough historic sense and sentiment to maintain it against mockery and decay. Such buildings are in a special category, outside the pressure of taxes, cost of maintenance, and profits.

One surprisingly hardy category is certain kinds of old houses and apartments. Whole sections of Philadelphia have been restored with public assistance, and in Cincinnati an entire district of decayed dwellings is being rehabilitated, with a minimum of public aid, for integrated housing. In Chicago, while handsome town houses in still-fashionable neighborhoods are being slowly replaced by high-rise apartments, in certain other neighborhoods, which had declined, apartments and houses are being gradually restored, mostly through private initiative. Although few of these buildings are individually outstanding as architecture, the neighborhoods—once they are upgraded—have an appealing quality: in some streets the effect is as though one has stepped back nearly a century into the past. Perhaps one important appeal is the sense of continuity, and of quiet protest against constant destruction and novelty. The end product succeeds because it is something that can be lived in by ordinary people; the buildings combine utility and a sense of attachment. It is otherwise with the grandiose mansions built by men of great wealth in the late nineteenth and early twentieth centuries. A number of these are pictured in *Lost Chicago* and *Lost New York* with an air of regret at their passing, but one has to ask to what end they could have been preserved. Unless they can be made to serve as museums or headquarters for organizations, or be cut up into apartments, they have not much place in the life of today.

In contrast, the survival rate of the Frank Lloyd Wright houses in the Chicago area is very high. Most of them, being in the suburbs, are not threatened much by urban blight, and they command respect because they are livable and at the same time architecturally brilliant and original. Wright's once popular Midway Gardens, however, was demolished. Like Ranelagh, which Dr. Johnson liked, and Vauxhall, where Becky Sharp lost her chance to marry Joseph Sedley, it could survive neither the change in styles of moneyed entertainment nor the decline of the neighborhood.

Among the most vulnerable structures are huge railroad stations, and their demolition, or threatened demolition, is met with anguished denunciations of vandalism, which may be as much a tribute to our strong romantic attachment to the great days of passenger railroading as to the architectural importance of the buildings themselves. But it might be almost as sad to preserve these mammoths. Without the continual movement of people, the coming and going of trains, and all the bustle and excitement of its former life, a vast railroad station is a chilling and dismaying sight. There may be no satisfactory resolution to this dilemma. The principal considerations seem to be that, aside from public buildings, monuments, and other structures with compelling historical and sentimental associations, a building can survive in the modern American City only if it has a reasonable economic value, a continuing function, and an acceptable uncontrived use.

From this point of view, the important buildings of the Chicago School have fared only moderately well. The Carson Pirie Scott building houses a flourishing department store. A few of the office buildings are also doing reasonably well: for example, the Rookery and the Monadnock Building. The Congress Hotel, after a thorough upgrading, is properly maintained and successful. On the other hand, the Auditorium Hotel, with an equally fine location just to the north, became seedy and went bankrupt, and was saved only because it was taken over by Roosevelt University. With the building secure, the Auditorium Theatre, which had fallen into lamentable decay, was restored with money raised by public subscription. This was a very special case. To those who had experienced its warm splendor and its remarkable acoustics, the theater had taken on the character of a historic public building whose loss would have been intolerable; and there was also the hope that it could again have a significant part in the musical and theatrical life of the city. Two important Sullivan buildings went

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down after serious efforts to prevent their demolition—the Garrick Theatre (originally the Schiller) building and the Stock Exchange building. The loss of such architecturally distinguished structures has been blamed on philistine apathy and the predominance of economic values in our culture. But apathy cannot be blamed for the loss of the Garrick. The effort to preserve it involved the city council, the mayor, and various organizations and individuals. The building was in a state of genteel decay, the small gem of a theater was not doing well even as a movie house, and the owners applied for a wrecking permit. The city won the first suit to delay the permit but lost on appeal. The amount of money required to restore the building could not be raised, and no satisfactory program for its future use had been agreed upon. Whatever wrongdoing brought about the loss of the Garrick, public apathy was not responsible. Still, the Garrick was a crucial test, and this experience may have weakened the public effort to save the Stock Exchange building. Such a structure is particularly subject to economic considerations if its location is valuable and in vogue. Updating a large office building is costly, and just as the invention of the elevator once outmoded all commercial buildings above two stories tall, so that of central air conditioning has made a handsome old office building less desirable to tenants than even an inferior new one—and added enormously to the cost of restoring its competitive commercial value.

The initial impetus behind most of the creations of the Chicago School was the commercial spirit. Hugh D. Duncan writes, in a prefatory note to *Chicago's Famous Buildings*, "the greatest clients of Chicago architects were business men and their wives." Hence the irony in the charge that the gradual loss of their work is due to the crassness of American commercialism. It is not, however, always or only the lowest motives of profit making that are at work. Developers are first of all interested in profit, but they tend to believe that in their case "self love and social are the same" and that they are inspired by the prospects of a bright new city. And there are the architects who have command of new technologies and are looking for the opportunity to bring daring new designs into being. They can point to the new life as well as the new shape they have given to a decaying Loop, to the world-famous new buildings they have produced, to the altered appearance and importance of the Near North Side, to the prospects for creating a new community on land no longer vital to the railroads, and to plans for extending the lakefront development and beautifying the river. They are showing, in fact, something of the spirit of the previous generation of builders and architects.

Yet there is a crucial difference. The architects after the fire were merely creators. Out of the desolate emptiness of rubble and ashes they were bringing into being new buildings designed on new principles. Often the present developers and architects are perforce destroyers as well as creators. They can appreciate better than most the merit of the best of the old buildings, and some of them have added their voices to the protests over demolitions that seemed inexplicable and inexcusable. Nevertheless, significant buildings of the past often occupy premium land, or they may be feeling the effects of urban decline, and in a crowded and heavily built-up city they may sometimes stand in the way of new plans. Chicago seems on the verge of repeating itself, and in the process sacrificing its past.

It is a phenomenon that produces mixed feelings. The excitement and optimism aroused when aging areas are renewed and revitalized by new architectural forms are balanced by uneasiness at the loss of attractive and familiar objects that, long taken for granted, seem good being gone—especially as the new architecture leaves some reservations in the minds of those who lived under the old. Its technical virtuosity is arresting and its clear, precise forms arouse admiration, but it lacks warmth and does not inspire affection. To catch the essential difference, one has only to walk in the lobby of the Rookery after the sterility of the lobby and mezzanine floors of the Sears Tower or the unfriendly emptiness in the similar areas of the Time-Life Building. It is an accepted theory of architectural history that the Chicago School lost its influence in the city of its origin, made a deep impression in Europe, and returned as a European influence when building started up again following the Second World War—in Chicago chiefly in the work

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and presence of Mies van der Rohe. The tradition of Chicago architecture, however, came back a changeling, and the difference in spirit can be seen in a small but important detail. The Chicago architects, taking advantage of steel and iron framing, increased the size of bays and windows to admit the maximum amount of light and air from the outside; the Reliance and the Tacoma buildings are logically one step away from the all-glass curtain wall. But the new all-glass buildings are sealed, and to decrease the cost of air conditioning the glass is tinted, so that the original purpose of large areas of glass is lost and artificial light must be depended upon. The result is the "black boxes" that unsympathetic Chicagoans grumble about, to the annoyance and resentment of those who approve. Yet even so great an admirer of contemporary architecture as Carl Condit believes that something has been lost in the transition. "The early work of the European pioneers," he writes in *Chicago's Famous Buildings*, "revealed a sure mastery of the new structural techniques and their formal possibilities, but it was a prime misfortune that the so-called International Style should have swept everything before it." "Even their best designs," he concedes, "seem coldly abstract beside the great richness and variety of the Chicago work."

Lowe alludes to the influence of the Chicago architects in Europe, but, aside from expressing his approval of Eliel Saarinen's losing design in the *Tribune* competition, he has little to say about the displacement of older buildings under the European influence. Although he would probably agree with Condit, it is not simply the loss of handsome and important buildings that is the source of his regrets, but the loss of the civilization of which they were a part. For Lowe, the turning of the tide came with the First World War. "There were two great cities," he writes, "that never fully recovered from World War I: Vienna and Chicago." With the "Princeton schoolmaster" in charge, "the sanity of the heartland was not to prevail," and the United States entered the war. The large German population and the radical political spirit made the city the target of conservative attack. Prohibition, which Chicago never wanted, replaced the beer garden and the "friendly saloon" with bootleg liquor and gangs. In the twenties, architecture became fanciful (the movie palaces) and the city became a center for jazz, but with the depression the end of what the city once stood for was in sight. Toward the conclusion of his long essay that accompanies the evocative pictures, Lowe quotes from Willa Cather's *Lucy Gayheart* the reflections of Lucy as she walks in the city at the turn of the century:

> "Yesterday's rain had left a bitter, springlike smell in the air; the vehemence that beat against her in the street and hummed above her had something a little wistful in it tonight, like a plaintive hand-organ tune. All the lovely things in the shop windows, the furs and jewels, roses and orchids, seemed to belong to her as she passed them. Not to have wrapped up and sent home, certainly; where would she put them? But they were here to live among."

And then he concludes:

> That was what Chicago had given to the millions who had come to it, lovely things to live among: hotels and Pullman cars, concert halls and skyscrapers. For a hundred years the city had given the gift and the gift had been glorious.

Lowe's capsule history of the years following the war is certainly oversimplified and the city he remembers is idealized, but no matter. He has produced a handsome elegy, and we respond. In an important respect his book is a work on the universal theme of permanence and mutability. Cities grow, decline, and are renewed, but in any given phase there comes a time, which we can see best in retrospect, when the various forces that have been shaping them reach for a brief period a harmonious realization of what time has been laboring to produce: "everything that grows / Holds in perfection but a little moment." The book also arouses further thoughts on our present discontents about our great cities. Those who undertook the rebuilding of Chicago after the fire had no doubts. They were optimistic about the future of their city and confident in their ability to create it anew, only more handsome and grand than ever before. The efforts to renew Chicago today also call for confidence and energy, but they have the air of working against time, of taking steps to check decay and decline before it is too late, of performing brilliant and daring

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therapeutic efforts to revive an ailing giant. The great renewal operation is haunted by an awareness, common to many American cities, of urban rot, unmanageable poverty, emboldened crime, pollution, and lack of money. Today we ask the question that Sert posed thirty-five years ago but with greater uneasiness and urgency—can our cities survive?

If Chicago's past is prologue, however, we may indulge in an audacious fantasy about its future: The John Hancock Center, in its day one of the tallest in the world, is being threatened with demolition. The area is deteriorating, the huge building is not doing very well, and the nearby medical school and medical center want the land for expansion. A petition is being circulated to save the building, which had been granted landmark status, but the petition loses on appeal and a wrecking permit is approved. Already a demolition permit has been issued for a nearby high-rise shopping mall which, because of its proximity to the old relic, originally called itself Water Tower Place. It was, when completed in 1976, a very elegant and attractive collection of department stores and shops and it was influential in shifting the center of fashionable shopping away from the Loop, thus hastening the decline of the famous department stores on State Street. In due time the buildings are leveled. Standing alone amid the ruins, still in excellent condition, is the relic of the fire of 1871 from which the shopping mall took its name. In the city hall there is a conference of businessmen, developers, and architects with the mayor and key members of the city council. They are discussing plans for the fourth Chicago.

I Stroke My Sleeping Son

RICHARD FROST

I stroke my sleeping son to comfort myself.
Saintly in the dark, I mope. My father's
nails, when he lay swathed in plastic tubes,
dug at my hand three times, and then he failed.
And yet I held his fist and waited for
the yielding up of his unstrangled soul.
He left me wringing nothing but my past.

Here in my son's dark I tell myself
my hand grows like my father's more each day,
and with it now I touch the quiet child,
my knuckles warm, my fears almost mislaid
until they find me out, stone on my chest,
my son awake. He makes my hand his own.

RICHARD FROST teaches in the department of English at the State University College, Oneonta, New York. He is the author of two books of poems, *The Circus Villains* and *Getting Drunk with the Birds*.

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Science Books

Out of Sight

RICHARD BERENDZEN

THE COLLAPSING UNIVERSE: THE STORY OF BLACK HOLES. *By Isaac Asimov. Walker. $8.95.*

QUASARS, PULSARS, AND BLACK HOLES: A SCIENTIFIC DETECTIVE STORY. *By Frederic Golden. Scribner's. $7.95.*

WHITE HOLES: COSMIC GUSHERS IN THE UNIVERSE. *By John Gribbin. Delacorte Press/Eleanor Friede. $8.95. Paper, $3.95.*

THE COSMIC FRONTIERS OF GENERAL RELATIVITY: A LAYMAN'S GUIDE TO THE NEW UNIVERSE. *By William J. Kaufmann, III. Little, Brown. $12.95.*

EXPLORING THE GALAXIES. *By Simon Mitton. Scribner's. $12.*

THE UNIVERSE: ITS BEGINNING AND END. *By Lloyd Motz. Scribner's. $14.95.*

BLACK HOLES, QUASARS, AND THE UNIVERSE. *By Harry L. Shipman. Houghton Mifflin. $12.95. Paper, $5.95.*

THE FIRST THREE MINUTES: A MODERN VIEW OF THE ORIGIN OF THE UNIVERSE. *By Steven Weinberg. Basic Books. $8.95.*

Mind-boggling! That is the only word for it. How else could you describe the flabbergasting discoveries and piercing insights of modern astronomy? Consider the cosmic menagerie encompassed by just the books under review: red giants, white dwarfs, supernovae, pulsars, starquakes, black holes, worm holes, quasars, primordial collapsars. Sober subjects these, enough to provoke even the most impervious, resolute nonscientist.

Last century, Thomas Carlyle, the crusty man of letters, mused: "I don't pretend to understand the universe—it's a great deal bigger than I am. . . . People ought to be modester." Today, however, astronomers, an immodest band, believe with Einstein that "the eternal mystery of the world is its comprehensibility." If every discipline has its epoch, this surely must be the age of astronomy.

RICHARD BERENDZEN, university provost of The American University, is the author of a number of books and articles including, most recently, *Man Discovers the Galaxies*, which he coauthored with Richard Hart and Daniel Seeley.

The electronics and space eras have opened the entire electromagnetic spectrum to observation and have facilitated *in situ* studies of the greater terrestrial environment; detectors vary from a neutrino counter in a mine shaft (studying processes in the sun's core) to Pioneer 10 (soon to depart the solar system). The phenomena investigated range from the cataclysmic birth of the cosmos to the frenetic death of stars, largely in tranquil near-emptiness. And sober, august scientific bodies now even assert that interstellar communication with extraterrestrial beings appears achievable, perhaps within our lifetime.

While observational astronomy has moved apace, theoretical astrophysics has likewise matured from its recent infancy into possibly science's most profoundly productive field. The enigmatic pulsars, black holes, radio galaxies, quasars, and the like may soon lead to breakthroughs in basic physics as well as astronomy; at least they resemble precursors of conceptual revolutions.

Astronomy increasingly offers to all sciences the ultimate lab: the universe. From curvature of space to structure of nucleons,

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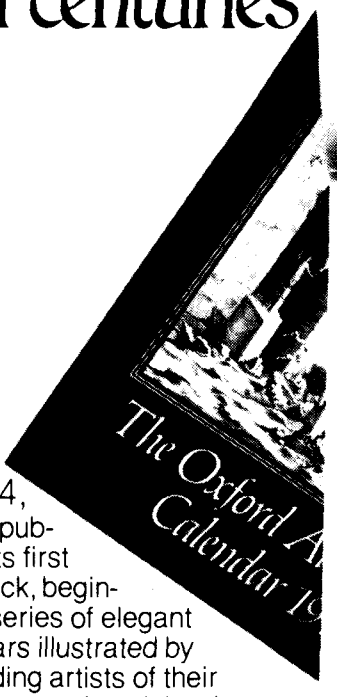

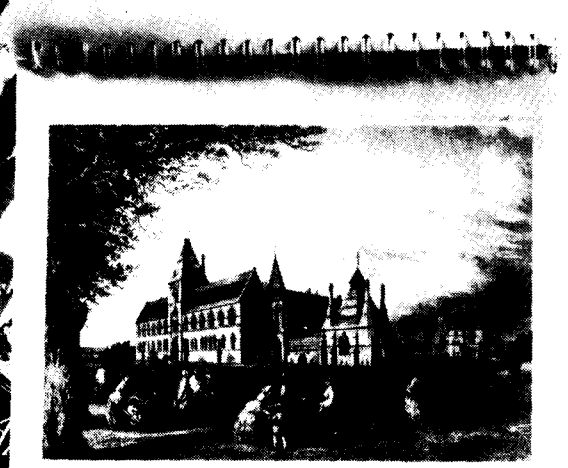

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from nature of time to genesis of life, from intergalactic void to stellar core, from gamma ray to lunar rocks—modern astronomy welds the sciences into an inextricably multidisciplinary endeavor.

From this gallimaufry, where to begin? The eight volumes I am reviewing concentrate primarily on stellar death, on galaxies, and on cosmology. Such subjects bode both good and ill: while including some of the most arresting ideas ever conceived, they are implicitly esoteric. Because these topics deal with matter under extreme conditions, substantial stage setting is required.

Of this group of books, the one with the longest warm-up is *The Collapsing Universe* by that prolific one-man publishing industry, Isaac Asimov. He does not arrive at his alleged subject until the next-to-last chapter. But what exactly is the subject? The title's use of an unfortunate play on words singularly misleads, suggesting a reverse to the widely known expanding universe. Since about 1930, astronomers have known that the galaxies are rushing apart from one another; hence the expanding universe. The jacket adds to the confusion by saying that Asimov here returns "to one of his greatest loves: cosmology," while also giving as the subtitle *The Story of Black Holes*.

Actually, the book's real subject is collapsed matter, specifically in its ultimate form of an ultradense object from which no light can escape. To reach this topical objective, Asimov leads the reader through a necessary but circuitous route, discussing particles and forces, planetary interiors, compressed matter, and stellar evolution—all as a prelude to the death phase of stars, when extremely compressed matter becomes significant. The driving force in collapsing objects is, of course, gravity, determined by an object's mass and size. This is ironic, because, of the four known forces in nature, gravity normally is by far the weakest; however, under the extreme condition of large mass in a relatively small volume, gravity not only dominates but even becomes indomitable.

On a planetary scale, as Asimov notes, Jupiter would have had internal nuclear reactions and become a star if it had been only slightly more massive. For several years we have known that when a star such as the sun depletes its internal nuclear fuel supply, it shrinks and becomes a highly compressed object known as a white dwarf. For a long time this was thought to be in the ultimate state of matter. But in the late 1960s the discovery of pulsars jolted our realization that massive stars can undergo violent deaths, such as a supernova explosion and irreversible collapse into a pulsar, a star in which all matter has been compressed into nuclei, forming, in a sense, a colossal atomic nucleus of astral proportions. But once this bizarre state had apparently been found observationally, the old theoretical idea of an ultimately collapsed object—a black hole—took on new meaning. Today not only most theoreticians, but many observationalists, concur that black holes indeed do exist. Even though by definition they are "black" (that is, they emit no light whatever), a few of them seem to have been found.

Asimov tells the story well in crisp, nontechnical language. But unfortunately he omits an introduction, conclusions, illustrations, references, bibliography, glossary, and appendixes. One wonders if, in the author's haste and the publisher's indifference, the entire book were prepared over a weekend. Nonetheless even a casual Asimov is better than none at all, and this one is characteristically clear and evocative.

Frederic Golden, science editor of *Time*, writes lucidly, too. In his elementary and understandable volume, he covers essentially the same material as does Asimov, but he includes a glossary, bibliography, and illustrations. Some of the figures of the principals in the story artfully support the often forgotten fact that science is more than data and theories; it also is a thoroughly human enterprise. Still, although generally well organized, *Quasars, Pulsars, and Black Holes* nevertheless includes an irrelevant chapter on interstellar molecules. But the author neatly ties theory to observation, and couples stellar death to cosmological issues such as quasars, those curious objects that appear to be among the most distant in the universe yet shine as brightly as a hundred galaxies while being scarcely larger than our solar system. Golden, as well as several of the other authors, speculates on fanciful hypothetical explanations for such a prodigious production of energy. In fact, however, the answer remains—to para-

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Intelligent Choices from Princeton

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"Mr. Black offers here a reading of the first three editions of *Leaves of Grass* based on the assumption 'that Whitman's poems originated in agonizing but mostly unconscious conflicts, and that the poems are responses to these conflicts.' No other study makes so strong and detailed a case for the vast amount of 'cathartic' experience in these early poems, for the psychological roles Whitman played, for the unrecognized sexual drives in the very lines of the poems."—*Richard M. Ludwig, Princeton University*

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British Women Novelists from Brontë to Lessing

Elaine Showalter

As a distinct subculture with its own unifying problems and experiences, English women novelists have always lived in a different "country" from men and have always had a literature of their own. Ranging from 1800 to the present, Showalter describes how this literary tradition has evolved through three historical phases: Feminine, Feminist, and Female. "Showalter provides excellent discussions of the Brontës, Woolf, and Lessing, but her book's particular merit lies in her treatment of minor novelists. . . . This outstanding contribution to literary history is highly recommended. . . ."—*Library Journal*

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Paul Valéry

An Anthology

Selected and Introduced by James R. Lawler

The prose and poetry in this anthology are drawn from *The Collected Works of Paul Valéry*, edited by Jackson Mathews. They provide the English-speaking reader with an introduction to Valéry's work, suggesting the diverse genius of a writer who, in the words of T. S. Eliot, "will remain for posterity the representative poet of the first half of the twentieth century."

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phrase Winston Churchill in a very different context—a mystery wrapped in an enigma.

Harry L. Shipman, a professor at the University of Delaware, discusses similar material in *Black Holes, Quasars, and the Universe*, but with greater stress on cosmology and at a slightly higher level, one more suitable for university nonscience majors. A thoroughly thoughtful volume, it is replete with photographs, carefully constructed sketches, and clarifying diagrams. Generally, Shipman's prose pales beside Asimov's and Golden's. (There are occasional exceptions, though, as in his claim that "black hole studies are a theorist's paradise but an observer's hell.") But didactically there is no comparison: whereas the other two books are reliable, readable accounts for laymen, Shipman's treatise is a meticulously prepared textbook for serious students. With a disarming first-person approach, he carries the reader through extraordinarily complex material, and he brilliantly summarizes each section, sorting the topics into such headings as "Observational Fact," "Concrete Theory," "Informed Opinion," and "Speculation." Not a trivial tract for the novice, this is a carefully conceived and brilliantly executed book.

Shipman concludes: "We may be able to look back to the early seconds of the evolution of the universe, but our vision stops there. This book ends by leaving the problems of creation to the philosopher and the theologian." A Harvard physicist, Steven Weinberg, wisely avoids attempting to explain the origin or preorigin of the universe in *The First Three Minutes*, but he succinctly chronicles the most perplexing phase of our collective history—the birth of the cosmos itself. Relegating mathematics to a supplement, he recounts his story with remarkable perspicuity, despite its intrinsic complexity. Many popular readers, however, may find it less than scintillating, for this volume has neither the pedagogical inventiveness of Shipman's nor the literary finesse of Asimov's or Goldman's. Yet it stands as the clearest exposition available for nonspecialists on the early stages of the cosmos.

And the first moments were fascinating, indeed. Weinberg begins by reviewing the historically confusing but now convincing evidence that the overall universe is expanding and that this expansion began with a bang, in fact the Big Bang, some 18 billion years ago. Not only do the equations tell us so, but in 1964 we discovered the residue of the great blast—the cosmic birth pang. The radiation from that flash naturally has cooled appreciably, now being only about 2.7°K. Yet it is there—in fact everywhere, always, surrounding and enveloping us, part of us and we part of it. Before the blast, all was metaphysics; afterward, for a moment, all was sublime simplicity engulfed in transcendent violence. At a temperature of 100 billion°K, the universe was filled solely with an undifferentiated soup of matter and radiation. Within seconds, though, the temperature and density plummeted, while nucleosynthesis proceeded apace. If Weinberg's reader will not tire of antineutrinos, weak interactions, and tritium annihilations, the motif to be found here is as enthralling and poignant as any genesis myth.

With the universe as with man, the most fascinating eras to study and the most difficult to understand are the temporal extremes, the beginnings and the endings. Let us, then, turn from the birth of the cosmos to the death of stars, particularly massive ones. The existence of black holes is predicated on the validity of a profound theory—Einstein's general relativity. The gravitational field of a totally collapsed star is so great that relativity's space-time folds on itself, stopping local time completely and halting the star's light. William J. Kaufmann, a young California astrophysicist and writer, uses copious illustrations and imaginative analogies to elucidate one of science's most recondite, abstruse branches. Although the resulting book may be of value to precocious nonscience undergraduates, its readers should be scientifically sophisticated. With a level and an approach comparable with that of the *Scientific American*, *The Cosmic Frontiers of General Relativity* will be fully understandable only to the specialist. For the astronomy major, say, this is virtually a tour de force. Kaufmann brilliantly explains the synthesis of relativity and gravitation as well as the various geometrics of space-time, using descriptive words rather than entangled field equations. And here we have an understandable summary of Stephen W. Hawking's utterly chilling theoretical conjectures about primordial black holes. In brief, Hawking argues that during

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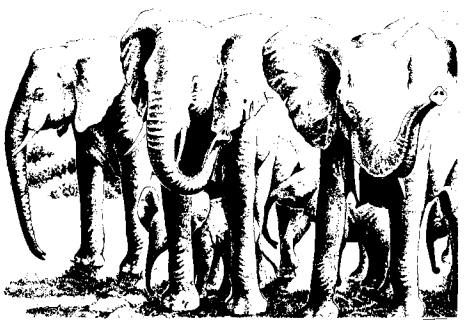

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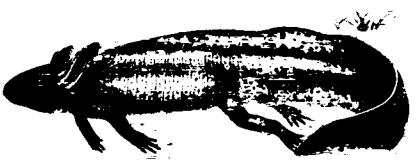

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the Big Bang, extremely low-mass black holes could have been created. Not by-products of stellar demise like their larger namesakes, these mini black holes presumably resulted from cosmic creation. If this is so, multitudes of these point-sinks could be scattered throughout the universe. Based on calculations as recent as October 1976, the implications are jolting. Witness Kaufmann's final paragraph:

> If a primordial black hole were discovered in or near the solar system, the implications for us are tremendous. I believe that we now in principle possess the technology to go out and capture such a hole and bring it back to earth. With the hole placed in earth orbit, the energy from evaporation could be beamed down to the earth's surface in microwaves, thereby providing us with a vast amount of clean energy. The economic and political ramifications are staggering. Not only would we no longer be dependent on fossil fuels, but also a black hole orbiting the earth would render thermo-nuclear energy totally obsolete. It is therefore conceivable that the esoteric mathematical calculations of a few theoretical astrophysicists could dramatically influence the entire course of humanity.

How could you top that? John Gribbin tries in *White Holes*. Much of nature is symmetrical: there are positive charges and negative, matter and antimatter, right-hand spin and left-hand. Therefore, might it not be that a black hole could have an opposite—that is, if things could go into black holes, then by reversing a sign in an equation might things come out of white holes, what Gribbin calls "cosmic gushers"? Some of the other books mention this possibility in passing, particularly as a hypothetical explanation for quasars, but Gribbin pursues it at length. He does so in a remarkably serpentine fashion, moving from black holes to Big Bang cosmology to binary stars to pulsars to Olber's paradox to Seyfert galaxies. Eschewing equations, Gribbin still assumes some background familiarity with the general subject matter. Controversial and speculative, his approach will appeal to some readers, but others may have difficulty accepting his efforts to jibe Genesis' scriptures with white holes and the expansion of the universe.

In contrast, readers will have no trouble accepting Simon Mitton's assertions, assuming they can fight back ennui. Allegedly for the nonspecialist, his book actually is too dry for the general audience, too skimpy pedagogically for the university student, and too elementary for the professional. Written in England, where nonscience students rarely take university-level science courses, *Exploring the Galaxies* stresses almost everything about galaxies that the nonspecialist would have no interest in knowing—using casual references to flux density, spectral indices, right ascension, and UBV photometry. Factual accuracy, with which this book abounds, is obviously laudable; alone, however, it is not redemptive.

But then we come to a magnum opus—Lloyd Motz's *The Universe*, a lively account of cosmic roots, the history of the universe from its birth, in its initial inchoate state, through its present highly differentiated assemblage of galaxies and stars and planets, ultimately to the multifarious ends we may face. As the master teacher he is, Motz, an astronomy professor at Columbia, patiently and persuasively carries us through the saga of all that was, is, or ever will be. Too long on physics generally, too short on astronomy specifically, too concentrated on Motz's specialty of atomic structure, and too lacking in good illustrations, this volume is not flawless. But for a succinct and readable distillation of man's understanding of his past and projected future, probably no other extant monograph stands as rival.

Books such as these can open new vistas for aficionados, dilettantes, and practitioners alike. And this is important, particularly for nonscientists. Two decades ago, C. P. Snow asserted that multitudes had "about as much communication with MIT as though the scientists spoke nothing but Tibetan." Regrettably, the situation probably has worsened since then. New scientific discoveries flooded in while universities reduced distribution requirements, schools at all levels lessened standards, and the public, bewildered by a complex world, lost faith in technology and blamed science. How lamentable in the short span of life to know *only* about man and virtually nothing about the world. How preposterously arrogant. How chauvinistically egocentric.

Receptions, even those frequented by aca-

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demic literati and industrial tycoons, give the astronomer pause, for inevitably he will be asked, "Can you guess people's astrological signs?" (Probably, about one time in twelve.) "Don't you think Velikovsky is brilliant?" (Yes, he sold many books.) "Why do the Air Force and NASA conspire to hide the awful truth about UFOs?" (To keep their budgets modest.) "What did ancient astronauts teach Peruvian Indians?" (Not law or medicine, but how to draw giant beetles.) "Do you like 'Star Trek?' " (No.) "Why did They place the Bermuda Triangle in the ocean?" (So that ships and planes will disappear, not cars or trains.) The literary analogue would not be "Did Bacon write Shakespeare?" but rather "Did a computer write McKuen?"

Why this public fascination with the exotic and the pseudoscientific, especially when the world of circumstance is infinitely more subtle and surprising? The popular, mystical theories are necessarily limited by human imagination, whereas the universe itself, as J. B. S. Haldane put it, is not queerer than we suppose, but queerer than we *can* suppose. And science fact, if presented well, can be far more engaging than science fiction; moreover, as Carl Sagan has noted, it has the additional value of being true.

As an example, let us consider the underlying paradigm of Motz's book on cosmic evolution—time. We kill time, spend time, lose time, make time, beat time, take time, waste time; but we virtually never consider time, much less understand it. Yet to view events properly and possibly even to perceive ourselves in rightful context, let us go back in time, even to its beginning.

For countless ages there truly *was* darkness on the face of the deep. Then, some 18 billion years ago, a cataclysmic explosion brought forth the cosmos itself. This was the birth of the universe. Even today we live in the lingering remnant of the radiation produced by that titanic blast. Some billions of years after the explosion, large ensembles of material clumped because of their mutual attraction. And so the protogalaxies were born. In those early galaxies, some of the gas and dust congealed by its own gravity to form large, amorphous, spherical balls, which slowly shrank and ultimately flickered into light. And so the stars were born. In the hearts of those stars, nuclear furnaces raged. In a form of stellar alchemy, hundreds of millions of tons of hydrogen were converted into helium every second. And so they have burned for all these billions of years.

As the stars formed, debris was left behind. Some of it became planetary systems around the stars. On some of those planets there must have been early atmospheres, perhaps similar to the earth's in its primordial days. In some of those atmospheres there must have been the very chemicals that brought forth life here. All current evidence compellingly suggests that the same processes that operated here might well have operated elsewhere, possibly thousands or millions or even hundreds of millions of times. If so, life may have flickered into existence on those planets, and some of that life may have been intelligent.

Billions of years went by, with galaxies forming and stars burning, expanding, exploding, shrinking, collapsing, dying. Then, some five billion years ago, on the remote periphery of an average galaxy in an unexceptional part of the universe, a particular star was born. On piece of debris number 3, special events were to take place; several billion years later the chemical and biological processes of that young planet's atmosphere and oceans yielded a strange new apparition—*Homo sapiens*, man.

After more eons elapsed, man evolved, creating societies and civilizations and education and nations and war and peace and law and science and technology and our modern world. And here we are in the year marked in time as 1977.

In such a cosmic sweep through space and time, any rational person must feel an almost overpowering smallness. Our day-to-day concerns and trite prejudices shrink into microscopic, infinitesimal nothingness.

Yet there is another side, and it gives dignity and worth to life itself. For even though our physiques are but specks in space and our life-spans but ticks in time, we nonetheless are capable of comprehending a system far vaster than ourselves. Our ethical and moral concerns, together with this ability, constitute some of the most ennobling characteristics of humankind.

Without astronomy we could not understand this epic, this cosmic perspective. And it is worth knowing.

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Blowing Their Tops

VOLCANOES OF THE EARTH. *By Fred M. Bullard. University of Texas Press. $26.95.*

Reviewed by KIRTLEY F. MATHER

Seldom does a year pass without a volcanic eruption somewhere on the face of the earth. Usually awesome and spectacular, such events have had a profound influence upon man and his environment for thousands of years. Close-range observations and carefully kept records provide significant clues to the entire geological history of the earth. Fred M. Bullard's well-written and beautifully illustrated book, with its many color photographs, will therefore be of great interest, not only to the serious student of volcanology, but also to the general reader who wants to know how the features of the earth's surface came to be as they are.

Although this is technically a revised edition of *Volcanoes in History, in Theory, in Eruption*, published in 1962, so much new material has been added and the revision is so thorough that for all practical purposes it is a new book. Not only are there descriptions of volcanic eruptions during the late 1960s and early 1970s, but appropriate consideration is given to the new and revolutionary ideas concerning plate tectonics that developed during that same period.

The author, professor emeritus of geology at the University of Texas in Austin, is well known and highly respected among geologists around the world. His many publications in scientific and technical journals have contributed notably to the extension of the frontier of knowledge and understanding in the earth sciences. His long series of field studies have taken him to most of the regions of volcanic activity on the earth and have enabled him to write about them in this magnum opus from firsthand knowledge.

The book begins appropriately with a critical discussion of volcanoes in general, in which facts are carefully distinguished from fiction and the history of the science of volcanology is traced from its beginnings in myth and speculation to its maturity in the twentieth century. Volcanologists, like all other scientists, have a yen for orderly classification of the objects of their research, and Bullard explains the modern identification of five types of volcanic activity. This involves a description of the highly diversified materials that come out of a volcano, ranging from "quiet" flows of molten lava to violently exploded "bombs," rock fragments, and "ash," with the accompanying emission of gases of varying chemical composition. Involved also are the geological processes, such as those that in 1912 suddenly transformed Mount Katmai in Alaska into a gigantic hole in the ground—a caldera.

Successive chapters are devoted to each of the recognized types of volcanic eruption. The Pelean type, which represents the extreme in explosiveness, is named for Mount Pelée, on the island of Martinique in the West Indies, whose eruption in 1902 annihilated the city of Saint-Pierre. The Vulcanian type—some prefer to call it the Vesuvian type—is named for Vulcano in the Lipari Islands off the coast of Sicily. Eruptions of this type, intermediate in the scale of explosiveness, characterize the activity of a majority of the currently active volcanoes known to man. Next is the Strombolian type, named of course for the Aeolian island of Stromboli, with its almost perfect cone rising from the floor of the Mediterranean. This type is characterized by mild explosions that continue over long periods of time and hurl into the air incandescent fragments of lava rather than dark clouds of ash. Quite different is the Hawaiian type of volcanic activity, which builds great domelike piles of basaltic lava, such as those in the Hawaiian Islands, that rise many thousands of feet above their surroundings. In contrast to all these, the Icelandic type involves the eruption of lava through long fissures in the earth's crust instead of from central pipelike vents. Such activity has built the great lava plateaus of the Columbia and Snake river basins in the northwestern United States, the Deccan Plateau in India, and those in the Paraná region in South America as well as the greater part of Iceland.

Especially intriguing are Bullard's chapters dealing with the somewhat controversial subject of volcanic cycles and with the birth of new volcanoes, such as Parícutin in Mexico,

KIRTLEY F. MATHER is a geologist and the author of numerous books, including *The Earth Beneath Us* and *A Source Book in Geology, 1900-1950.*

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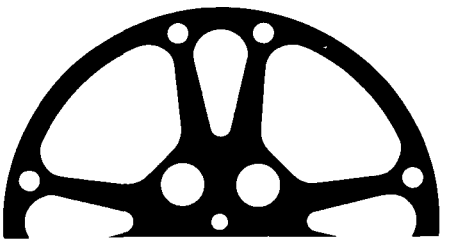

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Capelinhos in the Azores, and Myozin-syo off the coast of Japan. The chapter on man's use of geothermal energy covers that subject thoroughly and has great significance at this particular moment in economic and political history. Equally important, from a quite different point of view, are the chapters on the geologic environment of the earth's volcanoes and their geographic distribution in terms of contemporary theories involving concepts of plate tectonics. The final chapter includes a broad-ranging discussion of the effects of volcanic eruptions on worldwide climates and some pertinent comments on the development of soils from volcanic deposits.

In recommending this book for the general reader, I would caution him against getting bogged down in the statistical data accompanying some of the descriptions—data essential for volcanologists but not of great interest to others. I would also remind the general reader that an excellent glossary begins on page 537; no apology should ever be offered for turning to it.

On All Our Houses

PLAGUES AND PEOPLES. *By William H. McNeill. Doubleday. $10.*

EPIDEMIC AND PEACE, 1918. *By Alfred W. Crosby, Jr. Greenwood. $17.50.*

Reviewed by JANE OPPENHEIMER

In 1936, an American bacteriologist, Hans Zinsser, published a book for general readers entitled *Rats, Lice and History; Being a Study in Biography, which, after Twelve Preliminary Chapters Indispensable for the Preparation of the Lay Reader, Deals with the Life History of TYPHUS FEVER.* It was, and is, a book of the greatest charm and wit. In the preface, Zinsser remarks: "In the course of many years of preoccupation with infectious diseases, . . . we have become increasingly impressed with the importance—almost entirely neglected by historians and sociologists—of the influence of these calamities upon the fate of nations, indeed upon the rise and fall of civilizations. The chapters which deal with this phase of our subject represent little more than preliminary notes. They may serve to stimulate future historians, who possess the learning which we lack, to give these factors the attention which they merit and to interpolate their effects into the interpretations of the past history of mankind."

Zinsser's own primary emphasis was of course on typhus, but before concentrating on it he included a more general chapter, "On the influence of epidemic diseases on political and military history, and on the relative unimportance of generals." In a small way, this chapter might serve as a sort of abstract of the portions of William McNeill's *Plagues and Peoples* that have to do with military history. McNeill is a general historian, a historian interested in society, who has attempted to do what Zinsser hoped someone would—to consider factors related to infectious disease with "the attention which they merit and to interpret [his] efforts into the interpretations of the past history of mankind."

McNeill's study ranges deeply through time and widely through space. He begins by speculating on the significance of parasites as critical agents in balancing the entire life system of which humanity was a part even before fully human populations had evolved. Thus even in his first chapter, "Man the Hunter," he follows the current trend by making his approach ecological. His final chapter discusses "The Ecological Impact of Medical Science and Organization since 1700," and thus superimposes upon ecological interpretations of history an equally fashionable emphasis on the influence of institutions on society.

McNeill begins his story with premodern man and concludes it (although he does not always follow a strictly chronological pathway) with the appearance of Hong Kong flu in 1957. Among plagues he includes a multitude of infectious pestilences in addition to those caused by the classic *Pasteurella pestis:* cholera, yellow fever, leprosy, tuberculosis, malaria, typhus, dysentery, syphilis of course, and many others. Geographically, also, his coverage is extensive; the whole temperate world is his oyster. Particularly noteworthy is

JANE OPPENHEIMER is William R. Kenan, Jr. Professor of History of Science at Bryn Mawr, and the author of *Essays in the History of Embryology and Biology.*

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his inclusion of considerable data on Chinese epidemics.

Data are provided on numerous subjects, but the book is essentially speculative, and many of McNeill's statements are qualified. Yet some, at least on the medical side, are not quite guarded enough. For instance, his comment that "by 1893 a vaccine against cholera had been developed" is misleading because it does not tell the whole story. Travelers, beware!

In general, however, McNeill is cautious. He is attempting to develop a sort of general theory of history, and, in defending it—good historian that he is—he makes a strenuous effort not to overstretch the facts. The theory may be briefly summarized as follows: the interrelationships, balances, and imbalances between microparasitism and macroparasitism are highly influential in determining the political, economic, cultural, and philosophical, as well as military, developments of human history. This is ecology with a vengeance!

Microparasitism needs no special definition beyond the usual technical one. The author does not give a particular definition of macroparasitism; he first uses the term in a paragraph that includes mention of predation by lions and wolves. Then, two paragraphs later, he uses it in connection with the seizure of food by the conqueror of a human community. Barbarians are macroparasites; so are governments; and he soon speaks of "macroparasitism leading to the development of powerful military and political organization." The practice of drawing analogies between states and organisms is ancient, and has sometimes proved dangerous. Still, those who enjoy speculation about theories of history will find this a stimulating book.

Epidemic and Peace, 1918, like *Plagues and Peoples*, is written by a historian, not a microbiologist, but there the resemblance ends. Alfred Crosby's book is entirely different from McNeill's in purpose, scope, and method. *Epidemic and Peace, 1918* centers on a single disease, Spanish influenza: its beginnings in the spring and summer of 1918; its explosion in America, Europe, and Africa; its devastation of the military personnel of many nations, ally and enemy alike; its inexplicably irregular spread through the civilian population of the United States. Special chapters are devoted to the course of the pandemic in Philadelphia and in San Francisco. The impact of the disease on our troops en route to France, and on the Allied Expeditionary Force abroad, is dealt with in two separate chapters. Then follows a comment on the 1918 Armistice, and thereafter a chapter on the flu and the Paris Peace Conference. Here the author includes some thoughts about the personal effects of the disease on Woodrow Wilson and their critical significance in the United States Senate's debate over the League of Nations.

The last hundred pages of the book are devoted to what Crosby calls "Measurements, Research, Conclusions, and Confusions." Among the statistics, he selects one conservative calculation that about 550,000 Americans died of the flu and its pneumonic complications in ten months, then compares this figure with that of the combined battle deaths in the United States armed forces in World Wars I and II and the Korean and Vietnamese conflicts—423,000. The commonly cited figure for world mortality from Spanish influenza, he says, is 21 million, but adds that an important demographer thinks that the pandemic actually caused 20 million deaths on the Indian subcontinent alone.

One conclusion of this careful and exhaustive study is that "we may never discover the secret of [the disease] because it was a matter of the balance between two factors, each of which defies the other, i.e. the virus' virulence and the host's vulnerability." Another is that "the pandemic affected history in general in the way that random addition of a poison to some of the refreshments served at the 1918 West Point commencement celebrations would have affected the military history of World War II; i.e., it had an enormous influence but one that utterly evades logical analysis."

Confusions abound throughout the volume, emanating not from the mind of the author himself but from the thinking of the individuals whose work, ideas, and actions he elucidates. There was confusion in the minds of those who assembled huge public meetings in the name of wartime patriotism at the time the contagion was spreading most rapidly. Confusions were enormous over the specific bacterium or virus responsible for the disease. The chapter on "Research, Frustration, and

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THE NEW HUMANISM

A Critique of Modern America, 1900-1940

By J. David Hoeveler, Jr. *xii, 207 pp., bibliog., index.* *$12.50*

This comprehensive intellectual portrait of the New Humanists focuses particularly on Irving Babbitt as the major spokesman. Hoeveler explores the philosophical foundations of the movement and gives important biographical information on its most important figures, including Paul Elmer More, Stuart Sherman, and Norman Foerster. He treats humanism in its context of modern America, raising several important questions about the place of classical standards and values in a society that has traditionally celebrated change and progress as its norms.

THE HAPGOODS, THREE EARNEST BROTHERS

By Michael Marcaccio. *280 pp. (approx.), illus., bibliog., index.* *$15.00*

Michael Marcaccio provides a sophisticated, sensitive treatment of the three Hapgood brothers and, in the process, casts considerable light on American cultural and intellectual life, especially in New York, in the early twentieth century. Norman Hapgood, the muckraking editor of *Collier's Weekly* and *Harper's Weekly*, Hutchins Hapgood, journalist and author of *The Spirit of the Ghetto*, and William P. Hapgood, businessman and experimenter in industrial democracy together reveal the diverse character of the Progressive Movement. Marcaccio probes the origins of their distinctive personalities and careers, so characteristic of the period.

BALLOTS BEFORE BULLETS

The War Referendum Approach to Peace in America, 1914-1941

By Ernest C. Bolt, Jr. *xvii, 207 pp., index.* *$15.00*

The first published study of the war referendum movement of 1914-1941, *Ballots before Bullets* examines the history of an unusual but, at the time, popular peace plan -- the idea of a direct vote of the American people on declarations of war. Professor Bolt stresses the plan's faith in "the people" and its affinity with Progressives such as Jane Addams, Amos Pinchot, and William Jennings Bryan. And he gives the fullest account yet available of the tactics of both proponents and opposition leaders such as Franklin Roosevelt.

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the Isolation of the Virus" is masterly reporting of medical history. Its first sentence perhaps illuminates the enigma in the book's title. Here Crosby, less prone than McNeill to compare organisms and societies, writes: "At the end of World War I it was apparent to all that the problems of human pathology pressing hardest for solution were war and influenza. . . . Coincidentally, in 1933 Hitler became Chancellor of Germany, . . . and Smith, Andrewes, and Laidlaw isolated the virus of influenza."

Crosby continues the story beyond 1933 to include Shope's studies of swine flu, which established that in swine the disease is a synergistic product of two microorganisms, but he makes clear that Shope's explanation of other influenzas by analogy is out of favor today. He concludes the scientific portion of his treatise by describing some modern immunological studies, which, like all their predecessors, raise more questions than they answer.

Although Crosby reports the speculations of others, and raises some fascinating questions of his own, his is a much more straightforward and less theoretical book than McNeill's, and his proportion of fact to fancy is much higher. (This is not to disregard the fifty-four pages of endnotes in *Plagues and Peoples.*)

Both books are heavily annotated and completely scholarly. Although *Plagues and Peoples* is a more general discussion than *Epidemic and Peace, 1918,* I found it hard and slow to plow through to the end. *Epidemic and Peace, 1918* is written with a lighter hand, but it is never frivolous or facetious about the horrors of its subject. It is rich in anecdotes, both about people and about events, that illuminate brilliantly the reactions of individuals and of groups of individuals to the catastrophe that overwhelmed them. Crosby is not attempting, as is McNeill, to emphasize social and cultural history; yet he is writing it willy-nilly through his judicious and imaginative choice of revealing examples.

Moreover, Crosby does deliberately consider what he calls culture in his afterword, entitled "An Inquiry into the Peculiarities of Human Memory," where he complains that American collective memory, as recorded in literature, has largely ignored the Spanish flu pandemic. With the exception of Thomas Wolfe and Katherine Anne Porter, novelists have not written about it, even though many of us who were alive in those years remember it well. As for peculiarities of human memory, I close by drawing attention to the fact that McNeill makes only one brief mention of Zinsser's *Rats, Lice and History* in his introduction. Crosby does not call attention to that book at all, but he does refer several times to Zinsser's textbook of bacteriology and to one of his technical articles on influenza.

Forcing Speech from Stone

THE STONE CIRCLES OF THE BRITISH ISLES. *By Aubrey Burl. Yale University Press. $20.*
MEGALITHS, MYTHS AND MEN. *By Peter Lancaster Brown. Taplinger. $13.95.*
ON STONEHENGE. *By Fred Hoyle. W. H. Freeman. $9.95. Paper, $6.50.*
SCIENCE AND SOCIETY IN PREHISTORIC BRITAIN. *By Euan W. MacKie. St. Martin's Press. $22.95.*

Reviewed by OWEN GINGERICH

Speak Thou, whose massy strength
and stature scorn
The power of years—pre-eminent, and
placed
Apart, to overlook the circle vast—
Speak, Giant-Mother!

Thus wrote Wordsworth of Long Meg, the twenty-eight-ton boulder that stands silhouetted imposingly on the skyline in Cumberland in central Britain. Beside this Giant-Mother rest her daughters, a ring of massive stones with magic power such that "no one could count them twice alike"—or so the local legends ran.

Long Meg and Her Daughters may be seen on Plate 10 of Aubrey Burl's *Stone Circles of the British Isles.* Plate 1 shows Tregeseal in

OWEN GINGERICH, professor of astronomy and history of science at Harvard University and astrophysicist at the Smithsonian Astrophysical Observatory, is this year on leave in England, where he is reading, writing, seeking out annotated copies of Copernicus's *De revolutionibus,* and photographing British megaliths.

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Cornwall, and Plate 36 records a magnificent airview of Avebury, the enormous configuration of stone rings north of Stonehenge. In between, plates of the mysterious stone circles of Castlerigg and Stenness, of Callenish in the Outer Hebrides and the Rollwright Stones near Oxford are enough to stir the wanderlust in any traveler with an archaeological bent.

As for Wordsworth and Long Meg, Burl concludes, "But poet and visionary received no answer." Today, nearly a century and a half later, I think we are considerably closer to having an answer on behalf of the Giant-Mother. To be sure, the answers from the archaeologists are frustratingly incomplete despite the improving accuracy of their excavations and the revised scale of carbon-14 dating of the sites. An extinct, preliterate cult, probably once rich in oral tradition, leaves behind only shadowy remnants of its social structure. A few tombs and shards and antler horn picks (at least datable by carbon 14) do not create a very satisfying picture of the Stone Age Britons.

But there are the stone circles themselves. As Burl demonstrates from the archaeological excavations, they are intimately connected with both living and dying. Some serve as graves, some are closely associated with nearby burial sites. Yet superimposed on all this is astronomy, weaving in and out of Burl's account in a way he can neither quite suppress nor quite cope with.

An ancient Cumbrian observer, standing in the center of the ring of daughters, could have watched the midwinter sun set over the tip of Long Meg. On the evenings after the midwinter night the sun was sure to work its way northward again, bringing the verdure of spring and summer. A ritual site, surely, but is there not a deeper strand of astronomy here? The hundred straining persons who set Long Meg on end must at least have had a supervisor who understood the rhythmic annual march of the sun.

Where Burl stops short in emphasizing astronomical motivations, two current works plunge on with a high level of amateur enthusiasm. One is Peter Lancaster Brown's *Megaliths, Myths and Men,* subtitled *An Introduction to Astro-Archaeology.* Obviously written as a popularization and a synthesis of other people's work, it nonetheless conveys a clear description of the celestial movements, and the relation of the rising and setting of the sun and moon to the orientations of the stone circles. His discussion ranges from the scratches on Paleolithic stone tools, questionably interpreted by Alexander Marschack as lunar cycles, to some of the aberrant excesses of nineteenth-century pyramidology. Brown's account is accurate and informative, and it provides an illuminating résumé of the controversy that has surrounded the astronomical interpretation of Stonehenge: Gerald Hawkins's *Stonehenge Decoded,* the 1965 book by an expatriate English astronomer that did so much to popularize the astronomy of these ancient stone sites; the rejoinder by the English archaeologist R. J. C. Atkinson published in *Antiquity* under the provocative title "Moonshine on Stonehenge"; and the continuing surveys by the Oxford engineer Alexander Thom and his associates.

Part of the continuing stir about Stonehenge has been created by Sir Fred Hoyle, whose recent *On Stonehenge* sums up his earlier papers. The English astrophysicist argues that the earliest Stonehengers had a high degree of astronomical knowledge and that they could have used the site as a central observatory for predicting eclipses. Hoyle has been far more successful than Hawkins at intimidating the British archaeologists, who are now prepared to believe that the monument *could* have been used to predict lunar eclipses. The real question, and one that in my mind still verges on fantasy, is *did* those ancient Britons use the site in this way? I am rather inclined to go along with Burl, who, in describing Stonehenge, remarks that "this ravaged colossus rests like a cage of sand-scoured ribs on the shores of eternity, its flesh forever lost."

Hoyle, it must be admitted, argues his case with enthusiasm (and sometimes with outrageous extrapolation: for example, when he derives the Christian doctrine of the Trinity from his three hypothetical stone counters for the sun, the moon, and the invisible nodes of the lunar orbit; "Could this be the origin of the concept of an invisible, all-powerful god?" he asks). But Burl's "forever lost" has too much the air of finality, for I am prepared to believe that we may well someday learn enough of the culture behind the stone rings to force a radical change in our outlook on

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preliterate civilizations. Peoples who cannot read or write are not necessarily ignorant. In fact, there are those who contend that the human brain began a decline when we began to write and lost the need for memorization.

For my taste, the most balanced and perceptive analysis of the significance of the British megalithic sites is Euan W. MacKie's *Science and Society in Prehistoric Britain*. A few years ago the archaeologist Colin Renfrew initiated a sweeping reappraisal of British prehistory by showing that the revised carbon-14 dating pushed the major early peoples back to a sufficiently early date so that a diffusionist theory of Mediterranean culture spreading to the British Isles was no longer tenable. MacKie, in his new book, attempts to explore the implications of the astronomy and metrology of the stone sites to a further reappraisal of prehistoric civilization in Britain, just as Renfrew has examined the consequences of the longer carbon-14 time scales.

By metrology is meant the study of the seemingly universally adopted length, the megalithic yard of 32.6 inches, that appears to have persisted as the standard measure for the stone monuments over many centuries; it is through the careful measurements of Alexander Thom that monuments such as Long Meg are being forced to speak. MacKie argues quite convincingly that even though British society was illiterate, it was nevertheless sufficiently differentiated to support a priestly class, and that such a group could have maintained both the standard units of measure and a surprisingly detailed knowledge of celestial movements.

When Julius Caesar described Iron Age Britain, he mentioned the Druids: "In [the learned order] they are said to learn by heart huge quantities of verse. Some spend twenty years in this *disciplina*. They consider it impious to commit this matter to writing." Although Stonehenge and the other megalithic monuments were established long before the Druids, MacKie considers that they might well have been the descendants of the astronomer-specialists of the late Neolithic period, and he suggests that the caste of learned Druids is "one of the most convincing pieces of evidence that a stratified, theocratic society existed in Britain at about 2500 BC."

MacKie, an archaeologist at the Hunterian Museum in Glasgow, brings to his account a sufficient mastery of pottery shards to convince his fellow professionals of his qualifications, but chiefly *Science and Society in Prehistoric Britain* is a penetrating investigation of numeracy and astronomy in the days when Stonehenge and Long Meg were erected. I suspect that this stimulating discussion will generate a new archaeological attitude not only toward Stone Age Britain, but toward early nonliterate societies throughout the world.

Cast of Trillions

MAGNIFICENT MICROBES. *By Bernard Dixon. Atheneum. $8.95.*

Reviewed by PAUL A. ZAHL

Our planetary scene appears to have no fewer than three physical modalities beyond the range of the naked eye: first is the universe-pervading electromagnetic spectrum, unseen except for a very narrow band of wavelengths which, when reflected, we perceive as colors; second, visible only in the composite, are the microcosmic galaxies of electrons, protons, atoms, and molecules which by the umpteen quintillions comprise all matter; and third are those infinitesimal living scintillas known as microbes.

Of these three invisible domains, microbiologist Bernard Dixon has appropriately chosen the third as the subject for his current book, published in Great Britain under the somewhat pretentious title *Invisible Allies: Microbes and Man's Future*. (The American edition's title is better.) The text includes a welter of up-to-date facts and interpretations, many only hinted at in such earlier works as Paul de Kruif's *Microbe Hunters* (1926) or Hans Zinsser's *Rats, Lice and History* (1935).

Back in pre-microscope times, how could even vanguard thinkers have visualized their skin, mouths, colons, and sundry other crannies aswarm with astronomical multi-

PAUL A. ZAHL was for many years senior scientist for the *National Geographic*, and is currently a member of the society's Committee for Research and Exploration. He is also adjunct research professor of biology at Fordham University.

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tudes of minute, pulsing, reproducing orbs, rods, and spirals, each with its astonishingly complex, sometimes noxious biochemistry? Even later, much closer to Pasteur, how could they have known that plagues and lesser infections are produced by only a mean minority of microbial species, and even then not by intent, but because warm mammalian tissues are at times easy and unresisting sources of nutrients? Or that without the two-billion-microbes-per-spoonful in soil, crops would not—could not—grow? Or that cheeses, wines, brews, spirits, leavened bread, vinegar, silage, sauerkraut are all by-products of microbic hordes metabolizing normally? "Metabolism is never visible," the science historian Morris R. Cohen once observed, "except to the eye illuminated by all sorts of ideas."

Dixon essays to correct the mainly medically engendered impression that microbes are solely agents of disease, death, and decay, vile enemies to be lysolized, gargled, antibioticized, or vaccinated out of existence. He lacks no fervor in pointing out that if "germs" and their microbial kindred (viruses, yeasts, unicellular algae and fungi, protozoa) were obliterated, the functioning of virtually all other organisms would grind to a halt. He notes Pasteur's contention that microbes are important preeminently for enhancing natural processes, not for destroying them.

Prefacing the argument, Dixon reviews the quite generally accepted proposition that somewhere between two and four billion years ago life on earth arose out of an ill-defined, soupy *Urschleim*. The first vital stirrings were in the form of colloidal bits that at length formed naked protoplasmic aggregations, then membrane-enclosed single cells of the sort we now know as microbes. Cellular associations followed, giving rise eventually to plants and animals.

But the primordial single-cell forms did not, by evolving, vanish. Legions of them retained their identity, although ever diversifying among themselves to produce a bizarre variegation of types and species whose intricate and ingenious biochemistries enabled them to adapt to almost any environmental situation offered by the physically changing and re-changing planet. Some bacteria and algae mutated to live in hot springs lethal to all other life forms. Some found their utopias

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in sere deserts, in the coldest of polar regions, the saltiest of lakes. There are those with enzymes capable of breaking down petroleum, carbon monoxide, phenol, iron, detergents, almost any sort of matter. Others unraveled the secrets of "fixing" inorganic nitrogen, or of producing alcohol from carbohydrates.

To protect themselves from annihilation by more rapidly proliferating bacterial cousins, particular fungi learned to exude a barricade of penicillin; while certain other microbes produced defensive streptomycin. Perhaps the most far-reaching of all microbial innovations was the development of chlorophyll—that magic wand for converting (with the help of the sun's radiance) simple carbon dioxide and water into complex energy-rich carbohydrates and proteins, the basic stuffs upon which all animal life must rely for nutrition. In short, fundamental biochemical reactions, which if achieved in the laboratory are honored by Nobel Prizes, were, over the eons of evolutionary time, accomplished by microbes—quietly, invisibly, and in stunning diversity.

That generally harmless squatter in the mammalian lower intestine, the bacterium *Escherichia coli*, has contributed enormously to our knowledge of physiology and genetics. Dixon describes *E. coli* as "one of the most comprehensively studied of all living creatures. . ." adding, "[it] has given us a considerable understanding of the physical basis of life." In 1968 scientists in Antarctica came upon frozen feces near huts occupied by Shackleton's party in 1913. Thawed, then cultured in the laboratory, what would show up in the fecal remains after fifty-five years of frozen sleep? *E. coli*, of course, vigorous and ready to reenter its traditional colonic habitat, from thence to send out a progeny to any and all of the earth's lakes, streams, ponds, and puddles. The *E. coli* count relative to that of less innocuous water-dwelling microorganisms is taken routinely to monitor the purity and potability of reservoirs.

Most microbes are so unbelievably small that ten trillion average-sized bacteria would not nearly fill a little match box; yet "the combined weight of all the microbial cells on earth is about twenty-five times that of the planet's animal life." Dixon resents public acceptance of microbes as "lower" organisms with crude physiological modi. While larger creatures possess specialized tissues for maintaining body chemistry, microbes function just as efficiently and in many instances more subtly, only on a Lilliputian scale. For example, within just a few hours a single bacterium may produce a spawn of billions, making mutation, selection, evolutionary change, and adaptation far swifter than among the more cumbrously reproducing "higher" forms. Dixon concludes: "Bacteria [biochemically] are more talented than *Homo sapiens*."

While many a microbe is obviously parasitic, think of the scores that operate symbiotically—that is, for the good of themselves *and* their hosts. Some bacteria live in nodules on the roots of such legumes as alfalfa, clover, and soya bean, there to "fix" atmospheric nitrogen into molecular forms valuable to both symbiont and host. Some fungi weave a *rete mirabile* of fibrils around the root tips of conifers, beeches, and oaks, where they aid the trees in absorbing soil phosphorus. Certain protozoa and bacteria inhabit termite guts, enzymatically releasing for their hosts' use energy derived from the breakdown of cellulose; and related species perform the selfsame service in the stomachs of most cud-chewing mammals.

The list lengthens: microbial makers of acetone, butanol, methane, myriad other solvents and gases; of acids like citric and lactic; of vitamins and enzymes; of luminescence in abyssal fishes. And as universal scavengers, microbes do yeoman service in the vitiation of sewage, in pest control, in dissipating oil spills, in removing noxious gases from mining areas, in checking the accumulation of litter on field and forest floor. The author's envoi—"Most microbes are helpful, not harmful"—is somewhat of a twice-told tale, but one whose repetition in the modern context is entirely welcome.

Dixon subsequently veers into more arguable areas. He reminds us that innocent microbes within the body, having attained a sort of steady-state equilibrium, often help hold down explosive proliferation of harmful ones. "People who are in every sense hale and hearty can carry tubercle bacilli, polio viruses, the streptococci that cause rheumatic fever, and many other 'pathogens' without being inconvenienced in the slightest way."

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Dixon cites the new science of gnotobiology—the rearing of laboratory animals in a totally germ-free milieu. Invariably such animals suffer from the absence of germs, and are far more easily infected by pathogens than those not so reared. He rails against the reckless use of antibiotics, because they may deplete the body of its normal store of benevolent bacterial flora; also because, by mutating into antibiotic-resistant strains, pathogens may become obdurate to further medication.

In his concluding chapter, "Extinction or Exploitation," Dixon billboards the possibility that some microbe species may be driven to extinction by universal vaccination or excessive use of antibiotics. A case in point is the reprobate smallpox virus, which the World Health Organization predicted would become virtually nonexistent by 1978. Dixon seriously regards its annihilation as the new genocide. To him the smallpox virus is as enchanting a work of nature as the butterfly or the koala bear. Such charity I find somewhat less than congruous, for smallpox has a grisly record of large-scale human killing and disfigurement, whereas the butterfly and koala do not.

Dixon reasons: "The incredible complexity of even such a miniscule form of life as the smallpox virus, particularly its DNA, could never be rebuilt in the laboratory. It represents the end-product of millions of years of organic evolution and is totally unique." In the back of the author's mind is, no doubt, the currently controversial issue of genetic engineering. To lose for possible future experimentation the DNA helix of even so treacherous a critter as the smallpox virus would be lamentable, Dixon avers. Here he takes on the passion of an ultraconservationist, carrying it to a somewhat bizarre extreme.

After an early career in the research laboratory, Dr. Dixon in 1969 changed hats and became editor of the magazine *New Scientist*. His writing is fluid, forceful, and clear; his ideas—understandably cycled through the pandect of his specialty—are provocative and no doubt contributory. His concluding thoughts burn hot on the potential of microbes as a form of military weaponry. He comes close to despair in noting that "the most lavishly funded mission-oriented projects ever mounted in applied microbiology

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have also been devoted to warfare rather than welfare." As movers and converters of organic energy, microbes have played an awesomely significant role in the four-billion-year drama of burgeoning life on this planet. Dixon genuflects in the fervent hope that microbial talents will never be diverted for deliberate use by man against man.

Only Disconnect

THE ADVISERS: Oppenheimer, Teller, and the Superbomb. *By Herbert York. W. H. Freeman. $6.95.*

Reviewed by JEREMY BERNSTEIN

In the late 1950s—my lamented salad days—it was the custom for weapons-oriented research establishments, like the Rand Corporation in Santa Monica, California, to offer summer jobs to fresh post-doctorals. The salaries, by my standards at the time, appeared astronomical, and the cadre—Lotus Land, Southern California—irresistible. Hence it was that, each morning during the better part of one summer, I would leave my small efficiency apartment on the beach, pass through the very tight security checks, and into the physics division at Rand to listen to my elders discuss various topics involving megadeaths, hardened silos, targets of opportunity, upper atmospheric hydrogen bomb tests, and the like. The atmosphere was not really Strangelovian—it may be recalled that Kubrick, in the film, referred to my then employers as the "Bland Corporation"—but, naïve as I was, the whole thing struck me as being slightly mad. One could look out the windows during these discussions, watch the palm trees waving, and note the lovely sun-tanned ladies of Los Angeles on their way to the supermarket or the beach. The connection between what was going on inside and what was going on outside appeared to me to be nonexistent. Once in a discussion on this subject with Kubrick, he remarked to me laconically that as far as he could see most people have less interest in nuclear weapons than "even in city government." This train of thought kept recurring to me as I read Herbert York's fascinating and generally excellent brief book, *The Advisers.*

The Advisers is concerned with what might have happened if President Truman had actually followed the advice given him late in 1949 by the small group of men composing what was known as the General Advisory Committee of the Atomic Energy Commission. Their advice was that our government should not initiate a crash program to build what was known as the "Super"—the super hydrogen bomb. It should be emphasized that this discussion took place before Ulam and Teller discovered what is now known as the "secret" of the hydrogen bomb—something that is still secret although, as York points out, most of the rest that is now relevant to his story is declassified. The "Super" under discussion here was an unholy mess, a real doomsday device that was never built, despite the fact that Truman ordered a crash program to do just that. Truman's announcement, on January 31, 1950, that our government had decided to go ahead with the "Super," transformed the character of the arms race and put us into the situation we are in now, where it has become all but impossible to get the genie to return to the bottle. York, who has been in the weapons business himself since 1943, is hardly naïve. He does not claim that all would have been champagne and roses if Truman had not made his decision. What he *does* claim, and I find this absolutely convincing, is that the advisers were right! Nothing would have been lost if the crash program had not been started, and it might have been possible to head off the hydrogen bomb project by using it as a bargaining chip with the Russians. The report of the General Advisory Committee—which from the sound of it must have been written by Oppenheimer, its chairman—in retrospect appears clairvoyant. What a pity, what a disaster that this secret debate took place in secret! The advisers themselves deplored that fact. What might have happened if, say, the whole debate had been televised? Even the citizenry of west Los Angeles might have become aware that what was at stake was a weapon that threatened to destroy the world.

This having been said, it should be pointed out that Truman's decision was a popular one. It was universally applauded in Con-

JEREMY BERNSTEIN is a theoretical physicist whose reviews and profiles appear in *The New Yorker.* His most recent book is *Albert Einstein.*

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gress. In the words of the *New York Times:* "No Presidential announcement since Mr. Truman entered the White House seemed, in the opinion of many observers, to strike such an instant or general chord of nonpartisan congressional support." The Korean War broke out not long afterward, and no one could have stopped any project that seemed to promote military strength, however illusory. The very catastrophic character of the hydrogen bomb prevented its use as a weapon in the Korean War, to say nothing of the war in Vietnam. As far as these enterprises were concerned, the hydrogen bomb had no effect on the outcome. The physicists responded patriotically to Truman's order, but this did not prevent Oppenheimer's subsequent security hearing, where, among other things, he was accused of dragging his feet on the construction of the "Super"—an accusation that, in view of York's book, was an ironic absurdity.

What is one to make of all this, and what lessons are to be learned? This brings me back to where I started. As far as nuclear weapons are concerned, the world appears to be divided into two groups. The overwhelming majority of people are on the outside. They are vaguely frightened of nuclear weapons—or frightened, from time to time, when someone forces them to think about the matter. Most of the time they (we) simply deny the problem away, like that of our own eventual deaths. These people, the vast majority, have, under present circumstances, little knowledge about the processes by which grave decisions, such as those of the advisers, are made. It is only afterward—long afterward—that they (we) even realize that such decisions have been made. Then, on the other hand, there is the small handful of people on the inside—the advisers—who are acting, in some sense, on our behalf. These people have not been elected. They have been chosen, and, as York's book shows, they do their best under almost impossible circumstances. If there is one overwhelming thing to be learned from the book, it is that this process *must* be opened up: we must all learn enough about these things to become advisers. We cannot all be nuclear physicists, but most people have good common sense. York's book portrays a tragedy in which the physicists, at least many of them, had common sense, but

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Still, the book's diversity of topics is as striking as the unity of its aim. Among the subjects within the realm of Bronowski's mind that are presented here are the limitations of formal logic and experimental methods, the epistemology of science, the distinctive nature of human language and the human mind, and the bases of biological and cultural evolution.

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the vast majority of people who might well have understood what was at stake were not allowed to show their own common sense, since the debate was sealed off from them. I have no idea what debates about our future are now taking place in secret. Insofar as there are any, share them with us. We may be able to help you.

The Abstract, the Tangible, and the Hoax

WITTGENSTEIN'S LECTURES ON THE FOUNDATIONS OF MATHEMATICS, CAMBRIDGE, 1939. From the notes of R. G. Bosanquet, Norman Malcolm, Rush Rhees, and Yorick Smythies. *Edited by Cora Diamond. Cornell University Press. $18.50.*

ADVENTURES OF A MATHEMATICIAN. *By S. M. Ulam. Scribner's. $14.95.*

THE INCREDIBLE DR. MATRIX. *By Martin Gardner. Scribner's. $8.95.*

Reviewed by EDWARD ROTHSTEIN

Mathematics and the physical universe stand in a peculiar relation. If mathematics were just an exploration of natural law it would be indistinguishable from physics. But if it were totally independent, there would be no explanation for what Eugene Wigner called the "unreasonable effectiveness of mathematics in the natural sciences." As Galileo wrote, "the grand book, the universe, . . . is written in the language of mathematics." The most abstract of theories connects with atomic explosions; the most ordinary of physical facts suggests daring mathematical abstractions. These are also the playful directions of our logic: deduction, the movement toward the particular, and induction, the movement toward the general.

But because mathematical statements seem to participate in an indubitable truth which even the world-dependent physical laws cannot attain, the Platonic view of mathematics has been dominant in philosophical thought: deduction derives from the laws of thought; induction is a distillation of truth. Geometry, for example, whose Greek etymology belies abstraction, was for Plato "knowledge of the eternally existent" which would "draw the soul to truth . . . directing upward the faculties that now wrongly are turned earthward." In this century, Bertrand Russell outdid Plato: "Mathematics takes us into the realm of absolute necessity to which not only the actual world, but every possible world, must conform." Russell's absolute necessity was traceable to the "logicist" thesis of Russell and Whitehead in *Principia Mathematica,* which attempted to show that all mathematics could be derived from the laws of logic and so stand independent of sensory experience. That school of thought tempted the young Ludwig Wittgenstein away from a career in engineering to study with Russell in 1912 at Cambridge. It was, as he said, his "salvation," but in his later philosophy, which culminated in the posthumously published *Philosophical Investigations,* he left it behind, criticizing not only Russell but the very ideas of logical truth and absolute necessity.

The lectures in *Wittgenstein's Lectures* are part of that later philosophy and were delivered in 1939, the year Wittgenstein succeeded Moore in the chair of philosophy at Cambridge. The work of those years is discontinuous with his early work. After writing his seminal *Tractatus Logico-Philosophicus* (1922), Wittgenstein had left philosophy altogether. When he returned to Cambridge in 1929, he began a reconsideration of all his early thought in a departure from the philosophy of silence and truth found in the *Tractatus.* The new thought was a public philosophy that developed as much in lecture as in isolation, and dealt more in dialogue than in proposition. Four of Wittgenstein's students—Bosanquet, Malcolm, Rhees, and Smythies—might have anticipated the publication of these lectures, for they transcribed them almost verbatim. Cora Diamond has edited their notes to create a single readable text that gives evidence of the public Wittgenstein, the lecturer, captured in patterns of speech and thought and conversation.

But the text is also important because so little of Wittgenstein's work was published during his lifetime and most of the post-

EDWARD ROTHSTEIN studied mathematics at Yale University and Brandeis University and is now studying English literature at Columbia University. His essays have appeared in *Commentary* and the *New York Times Book Review.*

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humous texts are derived from notebooks. These include *Remarks on the Foundations of Mathematics*, which was published about twenty years ago and is the major source for Wittgenstein's thinking about mathematics, but is really the tentative, unpolished questionings of notes. The texts of these lectures, though, are at least finished in the sense that they were delivered as they appear in print, and so are more an act of Wittgenstein's will than posthumous notebook pluckings.

Wittgenstein's philosophy of mathematics in *Remarks* did not overwhelm the professional philosophical community by any means, and these lectures are not likely to either. Nevertheless, as a nonprofessional I find them fascinating. If nothing else, they demonstrate the Socratic nature of Wittgenstein's approach, the skepticism, the questioning (without sophistry), the protestations of ignorance. There are even moments of critical dialogue with students, including Malcolm, Rhees, and the logician Turing. Norman Malcolm wrote of these lectures, "They were given without notes or preparation. Each lecture was new philosophical work. Wittgenstein's ideas did not come easily. He carried on a visible struggle with his thoughts." That struggle is preserved in the text. "What the hell," he comments. "Isn't it queer." He criticizes his formulations: "That is badly put"; or reveals: "It's puzzled me more that [*sic*] I can say." The point of the lectures, he says, is to question, to investigate, not to express opinions. But opinions are expressed, although Wittgenstein's thinking about mathematics cannot be readily classified within any major school.

Wittgenstein rarely appeals to difficult mathematical theory, or even to the subtle complexities of logic and foundations. The title of these lectures may even be misleading, for Wittgenstein says, "I am not going to lecture on [the foundations of mathematics] . . . I know nothing about it." These lectures, then, are difficult in their arguments but accessible in their mathematics. "All the puzzles I will discuss can be exemplified by the most elementary mathematics." The puzzles are puzzles of language and meaning. The questions are about the distinctions between mathematical language and everyday language. Only in the second half of the text does Wittgenstein explicitly argue against

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Russell's notion that logic is the foundation of mathematics, but by 1939 that was already a moot question. The point of the lectures is to call all mathematical Platonism into question.

Some of Wittgenstein's ideas are fairly conventional. He is not pleased with the usual ways of thinking about mathematical infinity, or so-called "existence" proofs which state that a mathematical object exists without supplying a means of finding it. He also questions, as have other logicians, the necessity of the law of contradiction (that a statement and its contradiction cannot both be true). But it is the very nature of mathematical and logical compulsion that troubles Wittgenstein. What happens in between steps of a proof? Why don't we allow contradiction? Why do we reason from "All men are mortal" to "Socrates is mortal"? Wittgenstein suggests that the laws of logic are not laws of thought but laws of convention and use. The law may convict, but the human judge permits mercy. Logic is not the machinery of the inner workings of the universe, but rather it is the case that "if the logical laws do not hold, we don't get the game we want to get, we don't play the game we want to play." Wittgenstein comments on the paradox "I am lying": "You may say that it is not a statement, or you may say that it is a statement, but a useless one."

The same thinking is applied to mathematical reasoning. What is the difference between "Two apples and two apples make four apples," and "2 + 2 = 4"? Why do we call only one a mathematical statement? And how do we get from the first to the second? Wittgenstein's questioning recalls Hume's discussion of our notion of physical causality and his answer is in some ways similar. A calculation such as $25 \times 25 = 625$ is adopted as a rule; it is not an experiment. "We could multiply in some other way but it would not be convenient." This is meant quite literally. Malcolm asks Wittgenstein whether we couldn't say "3×3 is *always* 9." Wittgenstein answers, "we might say that, but in some higher multiplications give an exception. If you read the newspapers and see how people get round pacts, you should not be surprised at this." Proof, Wittgenstein seems to say, is not a reflection of the truth, but it creates the truth.

This kind of argument might seem pedantic to some, and it is in fact a weakness of Wittgenstein's presentation, as he himself seems to realize, that mathematical and logical compulsion are never fully explained; surely one wishes to say (he himself does) that it is not merely a matter of convention. But he wishes to make the point that it is the *use* of mathematics that is its meaning. There is no Platonic heaven of a priori necessity, but only an earthly exploration of our world within certain social conventions. The foundation of mathematics is not the "cold and austere" beauty of Russell's logic, but the "empirical facts" that engage us in a kind of language game. Mathematics is not discovery but invention. The problems of induction and understanding are those of language itself; they do not occur in isolation or silence. Mathematics and language are significant pursuits because they deal in meaning, which is use, which is action. There is no private language. In his memoir, Malcolm tells of Wittgenstein's anger when Malcolm makes a comment about "national character" on the eve of the Second World War. Years later, in 1944, Wittgenstein recalled that incident in a letter to Malcolm: "What is the use of studying philosophy if all that it does for you is to enable you to talk with some plausibility about some abstract question of logic, etc., & if it does not improve your thinking about the important questions of everyday life, if it does not make you more conscientious than any . . . journalist in the use of *dangerous* phrases such people use for their own ends."

Wittgenstein advised his students against a career in philosophy, perhaps because the ideas of use, common sense, and concrete example were at the heart of his later thought. During the Second World War, Wittgenstein, who was one of the foremost philosophers of the time, worked as a porter in a hospital in London, and then as "lab boy" in a research clinic. In 1947, he felt unable to continue in the contemplative academic post at Cambridge. He retired to isolation on the west coast of Ireland. This final retreat may not have been made in a search for purity, though, but in resignation and discouragement. He wrote in the preface to the posthumously published *Philosophical Investigations*, "I make [these remarks] . . . public with doubtful feelings. It is not

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impossible that it should fall to the lot of this work, in its poverty and in the darkness of this time, to bring light into one brain or another—but, of course, it is not likely."

While Wittgenstein was working as a porter and lab boy, Stanislaw M. Ulam, one of the foremost mathematicians of our time, was working at Los Alamos on the Manhattan Project. Wittgenstein connected the meaning of all mathematics with its use; Ulam demonstrated again and again the surprising usefulness of the abstract, both in theory and in applied work. This interplay is one of the themes of Ulam's autobiography, and, in a fascinating last chapter in which he mentions Wigner's essay on the "unreasonable effectiveness" of mathematics, he speculates globally on physics, mathematical possibilities in biology, and the generalization of special relativity. "Mathematics," he writes, "may be one of the few means of perfecting the human brain."

Adventures of a Mathematician is not the story of the perfection of a brain, though, but of a career that began in Lwow, Poland, and went on to encompass Princeton, Wisconsin, Los Alamos, and Washington, D.C. The book is aptly titled. There is the childhood in Lwow with the requisite first memories, the early signs of mathematical talent, and the lively student and mathematical life of Europe during the decades before the war. Mathematical life was conducted in cafés, with discussions of theory lasting for hours; in the Scottish Café, discussion was accompanied by a large blank book in which were recorded the problems and the solutions worked out by Banach, the young Ulam, and their colleagues. (That book survived the war and was published by Ulam in 1957.) The humorous anecdotes of the precocious personalities are punctuated throughout by an incantation: "Ruziewicz was murdered by the Germans on July 4, 1941," "Schreier was murdered by the Germans in Drohobycz in April, 1943," et cetera. But Ulam's own story moves across the ocean before the war, in a series of adventures that lead eventually to Los Alamos.

Ulam is not an elegant stylist or an eloquent writer, but his is still a fascinating auto-

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biography. Ulam is clearly a charming man, and rightfully pleased with himself and his clever, original mind. With mathematical wit he comments that Los Angeles is a discrete topological space, since any two points are at least an hour's drive apart, and he reveals his previously unpublished administrative theorem: the difficulties of administering N people are not proportional to N but to N^2. Ulam shows insight into the strengths and weaknesses of his colleagues and their styles, and also is forthright about his own strengths in sensing large schemata, seeking new perspectives, and posing the right kinds of questions.

But at least one of the weaknesses of the book is that the events at Los Alamos are treated in much the same way as in previous gatherings of the talented at Princeton or Wisconsin, including breezy stories and jokes with Fermi and von Neumann, or the power plays of Edward Teller. As a kind of university the place must have been remarkable. The names of the participants suggest that the overwhelming power of the atomic bomb was due in part to the mental energy that went into it: von Neumann, Rabi, Lawrence, Fermi, Bohr, Bethe, Chadwick, Feynman, Teller, Weisskopf. "In the history of science," writes Ulam, "there had never been anything remotely approaching such concentration." But Ulam will only occasionally comment on the sort of activity they were involved in, or examine the notion of scientific responsibility. At least in discussing the work on the A-bomb Ulam should have mentioned the reasons for such concentrated effort; they included the need to reach solutions to the theoretical and practical problems before Werner Heisenberg and his colleagues did so on the other side of the world. There really was no alternative to the Manhattan Project. The work on the "Super"—the H-bomb—that began after the Soviet Union exploded its own nuclear device needs a different kind of discussion. Ulam recognized this work as being the "gravest" he had done, but "I never had any questions about doing purely theoretical work. . . . I sincerely felt it was safer to keep these matters in the hands of scientists . . . rather than in those of demagogues or jingoists, or even well-meaning but technically uninformed politicians." Surely, though, Heisenberg could have offered the same arguments; in themselves they do not reveal the complexities of the relationship between theory and application. Ulam, who was a consultant during the Kennedy administration, ought to have said much more about government science.

But perhaps such discussion does not really belong in a book of adventures in which serious discussion is restricted to mathematical ideas and personality. That discussion has its own brand of insight. Ulam, for example, is a skeptic about Oppenheimer's conscience. He does not believe Oppenheimer opposed the H-bomb purely on "moral, philosophical, or humanitarian grounds," but because, having been instrumental in one revolution, he did not "contemplate with pleasure still bigger revolutions to come." When the A-bomb lit the desert sky in the Trinity experiment, Oppenheimer thought of words from the *Bhagavad Gita*: "It flashed through my mind that I had become the Prince of Darkness, the destroyer of Universes." Ulam thinks he exaggerated his role. "Johnny [von Neumann] used to say, 'Some people profess guilt to claim credit for the sin.' " Whatever the guilt or sin, that transformation of tangible mass into more tangible and terrible energy was probably the most powerful argument in history for the "unreasonable effectiveness of mathematics in the natural sciences."

Pythagoreans have their own explanation for that unreasonable effectiveness: all reality is an expression of number; all numbers reveal the secrets of the universe. In their speculations, Pythagoreans may touch on true properties of number, but these are often paired with astrology and the occult. It may be unfair to both Ulam and Wittgenstein, then, to include *The Incredible Dr. Matrix* in a discussion of mathematics. But according to his biographer, the *Scientific American* columnist Martin Gardner, Matrix is "believed by many to be the greatest numerologist who ever lived." And like Ulam and Wittgenstein, his life says much about his work. Gardner's sketch is rough on the early years of Irving Joshua Matrix (né Bush) but he was clearly influenced by his father, a Seventh-Day Adventist missionary. Gardner says Matrix later became a personal friend of the "world-renowned French mathematician, Nicolas

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Bourbaki," but I have been unable to locate the elusive Bourbaki (who has some impressive texts to his name) as I have been unwilling to look for Dr. Matrix. Indeed, Matrix is constantly on the move, from New York to Los Angeles, from Sing Sing to Chicago, from Honolulu to Pyramid Lake. His activities make it necessary for him to keep on the move. He has engaged in counterfeiting twenty-dollar bills with a method imitated by several readers when Gardner revealed it in a 1963 column; Matrix did time in Sing Sing but was let off early for cryptographic service to the State Department. Matrix has also run a cabaret act, accompanied by his daughter Iva Toshiyori, with whom Gardner himself seems to have dallied. He has posed as a Viennese psychonumerologist and a numerological consultant. Under an assumed name he has even tried to interest investors in his dynamaforce generator, a perpetual motion machine that caused a small scandal in Houston when its battery-driven motor was detected. Obviously this Matrix is a somewhat shady character.

Yet there may be something to his theories. In 1960, just after Kennedy was elected, Gardner met with Matrix and recalled that since 1840, a year whose digits add up to thirteen, "every president elected in a year ending in 0 has died in office." When that pattern was tragically continued, Matrix carried out a detailed analysis of the similarities between the Lincoln and Kennedy assassinations that should put to rest the many conspiracy theories. Matrix's political acumen is also revealed in his interpretations of the numerical value of politicians' names; it is simply incredible. Many secrets are revealed and many more suggested. "Correctly interpreted, you know," Matrix informs Gardner, "pi conveys the whole history of the human race."

Among the amazing facts in this book are that the thirteenth of a month is more likely to fall on a Friday than on any other day of the week and that the largest number in the Bible is that of the two hundred thousand thousand horsemen in Revelation 9:16. The most stirring meeting with Matrix takes place on the shores of Pyramid Lake in Nevada, where the secrets of pyramid power are revealed: a pyramid of the proper dimensions concentrates "psi-org" energy, and keeps meat within it fresh, razors sharp, and plants alive. This account, which appeared in the June 1974 *Scientific American*, was so inspiring that hundreds of readers wrote to Gardner for more information. Some traveled to Pyramid Lake and were unable to find the fleet-footed Dr. Matrix or his Indian assistant, One-Tooth Ree. A prominent New York publisher was so impressed with Gardner's journalism that he offered him a $15,000 advance on a book dealing with pyramid power; the offer included the option of exposing the book as a hoax after one year of promotion. Gardner, of course, refused to make money off Matrix's insights, although not everyone is so altruistic. Matrix himself was cashing in on an ancient Egyptian secret that already had a large following: for years pyramid models, and books about them, had been selling well and earning more than psi-org energy. The prices will probably rise still further, for they have also been found to improve TV reception, cause levitation, and sharpen electric razors.

There are, no doubt, skeptics among us who will not believe the incredible as Gardner reports it. But there are more concrete and challenging number puzzles in this book to keep them busy until further proofs are found. And for those without much sympathy for this kind of Pythagorean numerology, Martin Gardner's other books, and his monthly column in *Scientific American*, will serve as antidotes. They are examples of the most elegant and well-informed general writing about mathematical theory and exotica that can be found anywhere. Rumor has it that even Irving Joshua Matrix consults them occasionally.

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Significant Science Books 1976-1977

The following is a list of scientific publications that merit the attention of general readers.

Autobiography and Biography

THE COLLECTED PAPERS OF CHARLES DARWIN. *Edited by Paul H. Barrett.* This collection offers insight into the gradual development of the mind of a brilliant scientist and a fascinating man. As such, it will prove to be of inestimable value to scholars of the history and philosophy of science, and to a broad array of geologists, biologists, and humanists. (University of Chicago Press. Two-volume set: $40.)

DISEASE IN A MINOR CHORD. *By Edward A. Steinhaus.* Through autobiography and personal reminiscence the author traces the history of that field of science devoted to the biopathology of invertebrates. (Ohio State University Press. $20.)

ENERGY AND CONFLICT: THE LIFE AND TIMES OF EDWARD TELLER. *By Stanley Blumberg and Gwinn Owens.* Edward Teller is one of the important nuclear physicists who studied in, and became refugees from, prewar Germany in the Einstein era. Teller is widely known as the father of the hydrogen bomb. (Putnam. $9.95.)

IN AT THE BEGINNINGS: A PHYSICIST'S LIFE. *By Philip M. Morse.* This is the autobiography of a scientific generalist who has been involved in the real-world utilization of scientific techniques and discoveries and has contributed to our knowledge of atomic physics, quantum mechanics, plasma physics, astrophysics, acoustics, machine computation, and operations research. (MIT. $14.95.)

PARTICULARS OF MY LIFE. *By B. F. Skinner.* The opening volume of B. F. Skinner's autobiography takes us from his small-town American boyhood in Susquehanna, Pennsylvania, through Hamilton College, Greenwich Village, and Europe, to his decision at twenty-four to enter the graduate department of psychology at Harvard. (Knopf. $10.)

THE PROFESSOR, THE INSTITUTE, AND DNA. *By René Dubos.* Dr. Dubos's newest book is about Oswald T. Avery's life and scientific achievements. (Rockefeller University Press. $15.50.)

A SCIENTIST AT THE WHITE HOUSE. The Private Diary of President Eisenhower's Special Assistant for Science and Technology. *By George B. Kistiakowsky.* George Kistiakowsky's memoirs include the nuclear test-ban negotiations, Khrushchev's visit to Camp David, the cranberry controversy, the impending rupture with Cuba, the U-2 incident, and the failed summit in Paris. The diary also affords glimpses of discussions with the president, bureaucratic and political rivalries over arms control issues, space technology priorities, and the organization of the scientific establishment. (Harvard University Press. $15.)

THE SPIRIT OF SYSTEM. Lamarck and Evolutionary Biology. *By Richard W. Burkhardt, Jr.* Jean-Baptiste Lamarck was a forerunner of Darwin. His career and the origin and development of his theory of organic evolution are examined by Richard Burkhardt against the background of French science at the turn of the eighteenth and in the early nineteenth centuries. (Harvard University Press. $16.50.)

THOMAS HUNT MORGAN. Pioneer of Genetics. *By Ian Shine and Sylvia Wrobel.* This is a biography of the Nobel Prize-winning zo-

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ologist who tested Mendel's findings in inheritance patterns and demonstrated the physical basis of heredity and the importance of the gene. (University Press of Kentucky. $7.50.)

To Be an Invalid: The Illness of Charles Darwin. *By Ralph Colp, Jr., M.D.* Dr. Colp presents a detailed history of Darwin's mysterious illness—the nature and the course of his symptoms, his varied treatments, his attitudes toward medicine and his illness, his relations with his doctors and those who cared for him. Background on Darwin's heredity and symptoms is included, as well as the first transcription of Darwin's family medical book. (University of Chicago Press. $17.50.)

Behavioral Sciences

The Articulate Mammal. An Introduction to Psycholinguistics. *By Jean Aitchison.* Professor Aitchison's examination of language includes the question of innateness, the link between language knowledge and language usage, and the production and comprehension of speech. (Universe Books. $10.)

An Asian Anthropologist in the South. Field Experiences with Blacks, Indians, and Whites. *By Choong Soon Kim.* Written from a fresh, non-Western point of view, Professor Choong Soon Kim's personal presentation codifies racial and ethnic attitudes among members of the working class in the rural South. (University of Tennessee Press. $8.95.)

The Behavior of Communicating. An Ethological Approach. *By W. John Smith.* Professor Smith enlarges ethology's perspective on communication by emphasizing the information animals relay through their display behavior. Detailed analysis of observed displays and display repertoires illuminates the theoretical discussion that forms the core of the book. (Harvard University Press. $20.)

The Biological Origin of Human Values. *By George Edgin Pugh.* The thesis of this work is that human values are innate, a product of man's evolution and genetics. Dr. Pugh draws on recent biological findings which indicate that the fundamental behavioral motivations of each species are inherited, and he looks at the human brain as a biological decision system in which innate values in the form of human motivations serve as the criteria for decisions. (Basic Books. $20.)

Current Issues in Linguistic Theory. *Edited by Roger W. Cole.* The eight essays in this volume present a state-of-the-art survey. They point the directions in which the discipline and its most exciting subfields are likely to move in the coming decades. (University of Indiana Press. $17.50.)

Gifts of Unknown Things. *By Lyall Watson.* Dr. Watson blends scientific knowledge with imaginative vision in his exploration for "explanations" of the mysterious phenomena in the lives of the inhabitants of Nus Tarian, a small volcanic island in Indonesia. (Simon & Schuster. $7.95.)

Intelligence in Ape and Man. *By David Premack.* A history of Dr. Premack's work with a female chimpanzee, this book includes an account of the development of the communication system he used with her. (Lawrence Erlbaum Associates. $16.50.)

Language Learning by a Chimpanzee: The LANA Project. *Edited by Duane M. Rumbaugh.* This report is composed of two sets of data: one about language learning in the chimpanzee, the other about language construction by man. Project LANA brings together several disciplinary endeavors: primatology, experimental psychology, cognitive psychology, the computer and information sciences, and, by indirection, the neurosciences as well as the philosophical issue of mind-brain dualism—the difference between man and beast. (Academic Press. $17.50.)

The Origin of Consciousness in the Breakdown of the Bicameral Mind. *By Julian Jaynes.* Based on laboratory studies of the brain and archaeological evidence, the author has constructed a theory of human psychology, culture, and history. (Houghton Mifflin. $12.95.)

Origins and Evolution of Language and Speech. *Edited by Stevan R. Harnad, Horst D. Steklis, and Jane Lancaster.* This collection of papers is from a conference on speech and on language held in 1975. The papers cover the subject in a wide variety of approaches, from examinations of the fossil

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records to studies of brain injuries and their effects on the power of communication. (New York Academy of Sciences. $59.)

THE PSYCHOLOGY OF LEFT AND RIGHT. *By Michael C. Corballis and Ivan L. Beale.* The authors present a theoretical integration and review of the problems associated with the difference between left and right in psychology and related disciplines. Human behavior is the principal subject, but experimental findings on animal behavior are assessed as well. (Lawrence Erlbaum Associates. $14.95.)

THE QUESTION OF ANIMAL AWARENESS. Evolutionary Continuity of Mental Experience. *By Donald R. Griffin.* Dr. Griffin summarizes current research in ethology that is revealing previously unsuspected aspects of behavioral complexity and volition—particularly in communication behavior. Not only do many animals communicate, but some even use symbolic communication systems, thus supporting the possibility that mental experiences do occur in animals. (Rockefeller University Press. $8.95.)

WHISTLED LANGUAGES. *By R. G. Busnel and A. Classe.* Of interest to the general reader as well as to the specialist in linguistics, this monograph summarizes what is known of whistled languages and how this knowledge was acquired, with chief emphasis on the linguistic, acoustic, ethnic, and geographical features. (Springer-Verlag. $16.50.)

THE WILD BOY OF AVEYRON. *By Harlan Lane.* The story of Jean-Marc Itard's teaching of the wild boy of Aveyron addresses the central philosophical and scientific debates of the nineteenth century, yet reads like a novel. Itard's contributions to sensory education have helped to shape childhood education and educational treatment of the mentally retarded. (Harvard University Press. $15.)

General

AUTONOMOUS TECHNOLOGY. Technics-out-of-Control as a Theme in Political Thought. *By Langdon Winner.* Dr. Winner evaluates the relationship between technology and society in broad philosophical terms within the context of political theory. (MIT. $17.50.)

CLIMATES OF HUNGER. Mankind and the World's Changing Weather. *By Reid A. Bryson and Thomas J. Murray.* The authors explain the logical and, in part, predictable climatic pattern we have been experiencing. They discuss what we may expect for the future, based on the perspective of the past. (University of Wisconsin Press. $8.95.)

A COMPARATIVE ATLAS OF AMERICA'S GREAT CITIES. Twenty Metropolitan Regions. *Edited by Ronald Abler; text by John S. Adams and Ronald Abler; Ki-Suk Lee, chief cartographer.* A wealth of detailed and useful information about social, economic, political, and physical aspects of the twenty most populous metropolitan regions of the United States is presented in more than 1,000 maps and in accompanying text. (University of Minnesota Press. $95.)

DEATH, DYING, AND THE BIOLOGICAL REVOLUTION. Our Last Quest for Responsibility. *By Robert M. Veatch.* Dr. Veatch offers a critical survey of the medical, ethical, and legal aspects of death and dying—one based on the assumption that the patient must be the center of any decision making. He appraises the philosophical issues and their influence on current medical and legal policy, and offers proposals for making policies compatible with advancing medical technology. (Yale University Press. $12.95.)

THE DRAGONS OF EDEN. Speculations on the Evolution of Human Intelligence. *By Carl Sagan.* Dr. Sagan dramatizes for the layman the inner world of the mind. He explains how human beings evolved, genes and brains together; who our ancestors and their competitors were; how our brains and the brains of other animals work; and why other intelligent extraterrestrial beings will be sufficiently like us intellectually to permit interstellar communication. (Random House. $8.95.)

ETHICS IN MEDICINE. Historical Perspectives and Contemporary Concerns. *Edited by Stanley Joel Reiser, Arthur J. Dyck, and William J. Curran.* The readings in this anthology are drawn from published and unpublished works in philosophical and religious ethics, history, political science,

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law, medicine, and biology. The anthology explores the moral and ethical foundations of medical practice and medical science. (MIT. $19.95.)

THE FORCE OF KNOWLEDGE. The Scientific Dimension of Society. *By John Ziman.* Professor Ziman presents a broad picture of modern science and of its relation to the world in general. He discusses historical developments and current problems in the relations of science and technology to society. (Cambridge University Press. $15.95.)

THE FUTURE OF SCIENCE. 1975 Nobel Conference. *Edited by Timothy C. L. Robinson.* This book presents the talks given during the eleventh annual Nobel Conference on "The Future of Science." It includes addresses by Nobel Laureates Sir John Eccles, Polykarp Kusch, Glenn Seaborg, and Langdon Gilkey. (Wiley-Interscience. $12.95.)

THE LEGACY OF MALTHUS: THE SOCIAL COSTS OF THE NEW SCIENTIFIC RACISM. *By Allan Chase.* Mr. Chase has written both a narrative history and a thoroughgoing attack upon the pseudoscientific "proofs" that particular social groups are genetically inferior. (Knopf. $17.95.)

MOTION AND TIME, SPACE AND MATTER: INTERRELATIONS IN THE HISTORY OF PHILOSOPHY AND SCIENCE. *Edited by Peter K. Machamer and Robert G. Turnbull.* In spite of convergence of interest and activity, virtual interpenetration of disciplines, and commonality of objectives, philosophy and science have been effectively and significantly separated in recent times. This book contains essays on enduring themes, common to both philosophy and science as subjects for scholarly investigation, by historians from the two fields. (Ohio State University Press. $22.50.)

THE PATCHWORK MOUSE. *By Joseph Hixson.* Against a background of political hustling and grantsmanship, veteran science reporter Joseph Hixson tells the story of a scandal involving faked test results in the frenetic race toward a cure for cancer. (Doubleday. $7.95.)

PREMEDITATED MAN. Bioethics and the Control of Future Human Life. *By Richard M. Restak.* The neurologist Richard Restak considers the social implications of psychosurgery, genetic engineering, and human experimentation. He cautions that advances in technology have outstripped our knowledge of how to handle them, and reaches some tentative conclusions about how biotechnology can be made more humane. (Viking. $8.95. Paper, $1.95.)

PROGRESS AND ITS PROBLEMS: TOWARDS A THEORY OF SCIENTIFIC GROWTH. *By Larry Laudan.* Professor Laudan proposes a strategy for establishing the rationality of science. (University of California Press. $10.95.)

PSYCHOSURGERY AND THE MEDICAL CONTROL OF VIOLENCE. Autonomy and Deviance. *By Samuel I. Shuman.* Dr. Shuman evaluates the legal and moral status of medical techniques to control violence and criticizes certain widely accepted positions on the subject. The volume will be of particular interest to lawyers, philosophers, physicians, and psychologists concerned with the modification of behavior and the ethics of biomedicine. (Wayne State University Press. $18.50.)

SCIENCE TEXTBOOK CONTROVERSIES AND THE POLITICS OF EQUAL TIME. *By Dorothy Nelkin.* Dorothy Nelkin's book goes beyond descriptions of the controversies over science textbooks to relate the disillusionment with science and the reaction against its power over people's lives by religious conservatives, activists of the "new left," and moderate proponents of participatory democracy. (MIT. $12.50.)

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SCIENTIST AS SUBJECT: THE PSYCHOLOGICAL IMPERATIVE. *By Michael J. Mahoney.* Professor Mahoney draws upon history, sociology, philosophy, and psychology in his attempt to lead the reader to an understanding of the scientist as a human—and a fallible—instrument of knowledge. He discusses such elements of modern science as graduate admissions and training, academic politics, journal publication policies, honesty in data reporting, and personal

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feuds among scientists. (Ballinger. $13.50.)

THE TUNING OF THE WORLD. A Pioneering Exploration into the Past History and Present State of the Most Neglected Aspect of Our Environment: The Soundscape. *By R. Murray Schafer.* To recover the lost sounds of the past, Schafer draws upon literary, documentary, and scientific sources. In order to analyze and make distinctions in today's world, which is overpopulated with sound, he provides notation systems, exercises, suggestions for "soundwalks," a discussion of acoustic design, and a proposal for a "soniferous garden." (Knopf. $12.95.)

History of Science

ADVANCES IN AMERICAN MEDICINE: ESSAYS AT THE BICENTENNIAL. *Edited by John Z. Bowers and Elizabeth F. Purcell.* This two-volume history of American medicine is arranged by subject, with the chapter for each topic written by specialists in the field. The treatment is historical, and technical references are provided at the end of each section. (Josiah Macy, Jr., Foundation. Two-volume set: $25.)

CREATION BY NATURAL LAW. Laplace's Nebular Hypothesis in American Thought. *By Ronald L. Numbers.* In 1796 the Frenchman Pierre Simon Laplace challenged the traditional view of divine creation when he proposed the nebular hypothesis, which explained the origin of the solar system as a natural development over extended periods of time. Ronald L. Numbers traces the chronological history of Laplace's cosmogony and the theological and scientific consequences of its acceptance in America. (University of Washington Press. $15.)

THE DEVELOPMENT OF NEWTONIAN OPTICS IN ENGLAND. *By Henry John Steffens.* According to Mr. Steffens, Newtonian optics in England offers an instructive example of how well-meaning disciples as well as changes in social conditions can alter and restructure the works of a great man. Although the system of Newtonian optics was never really defeated, after 1830 it simply failed to attract new adherents. (Science History Publications. $12.)

ESSAYS AND NOTES ON THE HISTORY OF MEDICINE. Selected from the Bulletin of the New York Academy of Medicine. *Edited by Saul Jarcho, M.D.* These essays were chosen to reflect the modern broad interpretation of the history of medicine. With this as a general principle, an effort was made to provide representation of major chronologic periods, of various continents and countries, and of men, books, ideas, and ideals. Ancient and modern medicine receive the most attention, with essays also on medicine in New York, paleopathology, and medical numismatic notes. (Science History Publications. $15.)

FOOD: THE GIFT OF OSIRIS. *By William J. Darby, Paul Ghalioungui, and Louis Grivetti.* In recognition of the great cultural and political influence of food on society, the authors of this richly illustrated two-volume work have focused on food habits, attitudes, and taboos in Ancient Egypt and the Nile valley and the beliefs from which they sprang. The first volume concentrates on animal-based products—chiefly the prerogative of the affluent—while the second deals with cereals, vegetables, fruits, and alcoholic beverages, the staple diet of the majority of the race. (Academic Press. Volume 1, $27. Volume 2, $25.)

FROM VINLAND TO MARS. *By Richard S. Lewis.* This comprehensive history of exploration begins with the earliest Viking voyages of Eric the Red and his son Leif, and ends with the dramatic Viking spacecraft landing on Mars. Richard Lewis identifies a series of historical episodes as part of a continuing process reflecting the cultural attitudes and technical capabilities of the Western world. (Quadrangle. $15.)

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IMAGES AND ENTERPRISE. Technology and the American Photographic Industry, 1839 to 1925. *By Reese V. Jenkins.* From the early daguerreotype to the first flitting motion

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picture images, this profusely illustrated study of photography explores the business, technical, and social factors that fostered the emergence of the American photography industry into a position of international leadership by the early twentieth century. (Johns Hopkins University Press. $20.)

THE MAZE OF INGENUITY. Ideas and Idealism in the Development of Technology. *By Arnold Pacey.* Dr. Pacey stresses noneconomic motivation in the development of technology in this history that ranges from the Middle Ages to the present day, and refers to the technology of Asia as well as the West. (Holmes & Meier. $12.95. Paper, $6.95.)

THE MEANING OF FOSSILS. Episodes in the History of Palaeontology. *By Martin J. S. Rudwick.* Writing for palaeontologists, geologists, and historians of science, Professor Rudwick takes five historical periods and shows how each period's interpretation of the meaning of fossils reflects its special view of the natural world. (Science History Publications. $15. Paper, $6.95.)

A MINOR MIRACLE. An Informal History of the National Science Foundation. *By Milton Lomask.* Mr. Lomask's chronicle of the National Science Foundation's first twenty-five years is based on selected episodes and developments of general interest. Included in this "informal history" is an account of the continuing controversy over the foundation's responsibility for the formulation of a national science policy. (National Science Foundation. $2.75.)

THE PURSUIT OF KNOWLEDGE IN THE EARLY AMERICAN REPUBLIC. American Scientific and Learned Societies from Colonial Times to the Civil War. *Edited by Alexandra Oleson and Sanborn C. Brown.* The papers in this volume represent a view of the activities, influence, cultural importance, and interrelationships of learned and scientific societies in the early years of America's intellectual and economic development. (Johns Hopkins University Press. $16.50.)

SCALES AND WEIGHTS. A Historical Outline. *By Bruno Kisch.* Mr. Kisch gives a comprehensive survey of the history of weighing and its instruments, supplemented by numerous illustrations. He approaches the subject as historian, metrologist, artist, and collector. (Yale University Press. $20.)

THE STORY OF ARCHAEOLOGICAL DECIPHERMENT. *By Maurice Pope.* Professor Pope provides a basic but thorough history of the decipherment and translation of the Egyptian hieroglyphics, cuneiform scripts, and Aegean and Anatolian writing. The 118 illustrations add greatly to the text. (Scribner's. $12.50. Paper, $4.95.)

SYNTONY AND SPARK—THE ORIGINS OF RADIO. *By Hugh G. J. Aitken.* Professor Aitken has written a book that is both narrative and analytical. It includes the story of the origins and development of radio technology as well as an examination of the relationship among science, technology, and economics, and their influence on society. (Wiley-Interscience. $15.95.)

THINKERS AND TINKERS. Early American Men of Science. *By Silvio A. Bedini.* Mr. Bedini concentrates on the combined endeavors of the self-taught Americans who charted the wilderness, navigated the unknown waterways, surveyed the new communities and the new territories, made the scientific instruments with which these accomplishments could be achieved, and instructed others in these practical sciences. (Scribner's. $17.50.)

THE VARIOUS AND INGENIOUS MACHINES OF CAPTAIN AGOSTINO RAMELLI. *Translated by Martha Teach Gnudi and edited with introduction, notes, and pictorial glossary by Martha Teach Gnudi and Eugene S. Ferguson.* Captain Ramelli's *Diverse et Artificiose Machine,* originally published in Paris in 1588, is one of the first pictorial technical books on solutions to problems raised by the construction of machines. The 194 engraved plates, reproduced in full in this first English edition, illustrate such diverse mechanical inventions as water-raising devices, flour mills, military bridges and fortifications, siege machines and catapults, screw jacks and wrenches, cranes, and a number of miscellaneous fountains and cofferdams. (Johns Hopkins University Press. $100.)

Life Sciences

THE CARNIVOROUS PLANTS. *By Francis Ernest Lloyd.* First published in 1942, this book

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remains the essential reference work for all botanists and others interested in these unusual, animal-eating plants. Illustrations and photographs supplement the discussion of topics including habitat, appearance, distribution, leaf form and structure, the trap, absorption, digestion, et cetera. (Dover. $4.50.)

CARNIVOROUS PLANTS OF THE UNITED STATES AND CANADA. *By Donald E. Schnell.* Dr. Schnell examines in detail the forty-five species and numerous hybrids of carnivorous plants that grow in the United States and Canada. Information on each species includes an identifying description, its preferred habitat, the range in which it can be found, and the season for flowering and for trapping. The book is illustrated with color photographs. (John F. Blair, Publisher. $19.95.)

CRYSTALS, FABRICS, AND FIELDS. Metaphors of Organicism in Twentieth-Century Developmental Biology. *By Donna Jeanne Haraway.* This book is a study of the work of three biologists—Ross G. Harrison, Joseph Needham, and Paul Weiss—and the contributions to the development of organicism by each of them. (Yale University Press. $15.)

EVOLUTION AND THE DIVERSITY OF LIFE. Selected Essays. *By Ernst Mayr.* Through his extensive knowledge of organisms in environments, Professor Mayr has brought a singular clarity of thought to many theoretical problems in evolutionary biology. (Harvard University Press. $20.)

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INSECTS THAT FEED ON TREES AND SHRUBS. An Illustrated Practical Guide. *By Warren T. Johnson and Howard H. Lyon.* This comprehensive handbook, beautifully illustrated with 212 full-color composite picture plates, provides essential information about more than 650 species of insects that can injure woody ornamental plants in North America. (Cornell University Press. $35.)

THE IQ CONTROVERSY. *Edited by N. J. Block and Gerald Dworkin.* The editors bring together a wide variety of critical opinion on the issues and arguments raised by Arthur Jensen and others about the heritability of IQ and the genetic explanations for low IQ scores among blacks. The views of such linguists, psychologists, and sociologists as Noam Chomsky, Leon Kamin, and Richard Lewontin are presented along with replies by Jensen and Richard Herrnstein. (Pantheon. $15.95. Paper, $6.95.)

THE LIFE SCIENCE. Current Ideas of Biology. *By P. B. Medawar and J. S. Medawar.* Although in no sense a textbook, this is a useful companion for serious students of biology, and will also interest sociologists, anthropologists, philosophers, psychologists, and literary people who want to learn something of the conceptual framework of modern biology. (Harper & Row. $8.95.)

MEDICAL BOTANY. Plants Affecting Man's Health. *By Walter H. Lewis and Memory P. F. Elvin-Lewis.* Dr. Lewis, a botanist, and Dr. Elvin-Lewis, a microbiologist, divide plants into those which injure, heal, and nourish, and those which alter the mind; then they group them by the parts of the body they affect. Hundreds of detailed drawings illustrate the plants discussed in this reference work for scientists, physicians, students, and the general reader. (Wiley-Interscience. $27.50.)

ONTOGENY AND PHYLOGENY. *By Stephen Jay Gould.* The author deals with the history and influence of Haeckel's fallacious hypothesis that individual development (ontogeny) recapitulates the evolution of species and lineages (phylogeny). Turning to

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modern concepts, he demonstrates the importance of *heterochrony*—changes in developmental timing, producing parallels between ontogeny and phylogeny; and *neoteny*—the opposite of recapitulation. (Harvard University Press. $18.50.)

PENGUINS: PAST AND PRESENT, HERE AND THERE. *By George Gaylord Simpson.* Dr. Simpson writes with affection about these interesting and extraordinary birds and their ancestors. He describes their basic characteristics, distribution, and their peculiarities of appearance, habit, and habitat. The book is illustrated, with both color and black-and-white photographs, drawings, and maps. (Yale University Press. $10.)

PLANTS AND ANIMALS OF THE PACIFIC NORTHWEST: AN ILLUSTRATED GUIDE TO THE NATURAL HISTORY OF WESTERN OREGON, WASHINGTON, AND BRITISH COLUMBIA. *By Eugene N. Kozloff.* This is a general natural history of the Pacific Northwest including about 450 species of the plants and animals that are fairly common, widely distributed, and can be easily identified by nonspecialists. The book includes 125 black-and-white figures and 321 color photographs. (University of Washington Press. $17.50.)

THE PURPOSIVE BRAIN. *By Ragnar Granit.* Professor Granit explains and integrates two major brain systems—the physiology of vision and the control of motor activity. He connects his investigation to the concerns of psychology, evolutionary biology, and the general organism-environmental interrelationship. (MIT. $12.50.)

REPRODUCTION AND HUMAN WELFARE: A CHALLENGE TO RESEARCH. A Review of the Reproductive Sciences and Contraceptive Development. *By Roy O. Greep, Marjorie A. Koblinsky, and Frederick S. Jaffe.* This study assesses the present state of knowledge about human reproduction; describes the settings and the constraints in which research takes place; and offers a number of substantive recommendations. (MIT. $16.95.)

THE SELFISH GENE. *By Richard Dawkins.* Mr. Dawkins attempts to explain in nontechnical language some of the most puzzling and paradoxical features of the biological world. (Oxford University Press. $8.95.)

SLOW VIRUSES. *By David H. Adams and Thomas M. Bell.* Beginning with scrapie in sheep and ending with a number of central nervous system diseases that are fatal to humans, the authors treat as viruses an ever widening number of rare but unusually severe diseases with a long latency period between infection and appearance of disease. (Addison Wesley. $19.50. Paper, $7.50.)

STARFISH, JELLYFISH, AND THE ORDER OF LIFE. Issues in Nineteenth-Century Science. *By Mary P. Winsor.* Professor Winsor seeks to understand some of the intricate developments of nineteenth-century invertebrate taxonomy. She examines the zoologists of the generation active in the half-century before the publication of the *Origin of Species* who based their theories on an orderly, unchanging world. (Yale University Press. $17.50.)

THE STRANGLEHOLD OF THE IQ. *By Benjamin Fine.* Dr. Fine, an educator, author, and journalist, summarizes for the layman what he believes to be the steadily accumulating evidence that the IQ is not a valid measure of a child's capacity for learning and achievement. He makes a case for the abolishment of all standardized testing and offers a number of alternatives. (Doubleday. $7.95.)

TREES AND MAN. *By Herbert L. Edlin.* An expert forester, stressing the need for active conservation, writes about trees and forests growing in various climates and man's relationship to them. (Columbia University Press. $25.)

THE WORLD OF SPIDERS. *By W. S. Bristowe.* The author writes enthusiastically about spiders and the world they live in, their structures and habits, and their influence on the evolution of insects. The book includes color and black-and-white photographs and 232 drawings. (Taplinger. $17.50.)

Physical Sciences

ENERGY TECHNOLOGY HANDBOOK. *Edited by Douglas M. Considine.* Prepared by 130 scientists and engineers, this timely reference work presents the most up-to-date technology involved in converting coal,

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gas, chemical fuels, hydropower, and nuclear, solar, and geothermal resources into usable and economically feasible forms of energy. Emphasis throughout is on the most promising, innovative concepts and the development of future energy systems. (McGraw-Hill. $49.50.)

FLIGHT TO MERCURY. *By Bruce C. Murray and Eric Burgess.* Written for the general reader, this book documents the flight of Mariner 10, the spacecraft launched in November 1973, to obtain the first photographs of the planet Mercury. Particular emphasis is on the human challenges involved in planning and then accomplishing a mission to another world. More than 100 photographs from the mission are included. (Columbia University Press. $12.95.)

THE GEOLOGY OF MARS. *By Thomas A. Mutch, Raymond E. Arvidson, James W. Head, III, Kenneth L. Jones, and R. Stephen Saunders.* This is a complete photographic survey of Mars and a primer of geological data about the planet. Beginning with a short historical and astronomical assessment of the attraction that Mars has had for mankind throughout history, the authors also consider the American and Soviet missions to the planet over the past twelve years. (Princeton University Press. $35.)

THE HIGH FRONTIER. Human Colonies in Space. *By Gerard K. O'Neill.* Since the origin of his space colony concept in 1969, Professor O'Neill, a Princeton University physicist, has been joined by NASA and many physical and social scientists, engineers, and others in government and business to plan future high-orbital manufacturing facilities. This book provides the details of building space colonies, transportation to them, living possibilities, and questions of gravity, agriculture, climate, and the length of days. (Morrow. $8.95.)

THE INNER PLANETS. New Light on the Rocky Worlds of Mercury, Venus, Earth, and Mars. *By Clark R. Chapman.* The author examines these four planets, the asteroids, and the earth's moon and their evolutionary processes for significant clues to our own past—and possibly to our future. (Scribner's. $8.95.)

LOWELL AND MARS. *By William Graves Hoyt.* In 1894 the astonomer Percival Lowell set forth his theory of the probable existence of intelligent life on Mars. Using original documents from the Lowell Observatory Archives, Hoyt examines the historical significance of this theory and of Lowell's other provocative ideas. (University of Arizona Press. $13.95. Paper, $8.50.)

MAN AND COSMOS. Nine Guggenheim Lectures on the Solar System Sponsored by the Smithsonian Institution. *Edited by James Cornell and E. Nelson Hayes, with an introduction by Thornton Page.* Taken together, the nine lectures from which this book is derived form the basis for a general knowledge of the makeup of what has become earth's close-in environment, the solar system. (Norton. $8.95.)

MAN DISCOVERS THE GALAXIES. *By Richard Berendzen, Richard Hart, and Daniel Seeley.* This book traces the history of astronomers and their discoveries, and provides an excellent introduction for today's continuing exploration of the cosmos. Through original letters, photographs, and archival treasures it recaptures the uncertainties, the false steps, and the high excitement as Shapley, Kapteyn, Curtis, and Hubble forged the modern views of our own and neighboring galaxies. (Science History Publications. $15.95. Paper, $6.95.)

NATIVE AMERICAN ASTRONOMY. *Edited by Anthony F. Aveni.* The fifteen papers on astroarchaeology in this volume were prepared for a symposium held at Colgate University in 1975. The subjects range from the stone rings on the plains of Saskatchewan to the Incas of Peru. (University of Texas Press. $15.95.)

THE NEW ARCHAEOLOGY. How New and Revolutionary Scientific Techniques Are Transforming Our Study of the Past. *By David Wilson.* Among the innovations in technique being practiced by archaeologists today are scanning systems, chemical analyses, plant genetics and pollen analysis, and potassium-argon dating. Mr. Wilson also discusses the hypotheses and explanations that the "new archaeology" has introduced. (Knopf. $10.)

SOLAR ENERGY: THE AWAKENING SCIENCE. *By Daniel Behrman.* Mr. Behrman presents a comprehensive portrait of a branch of science that, for all its disagreements and rare

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moments of consensus, has emerged from an oblivion to which it is not likely to return. The author answers for the general reader many questions about solar energy, and talks at length with the world's leading solar researchers and exponents. (Little, Brown. $12.50.)

WATER RE-USE AND THE CITIES. *Edited by Roger E. Kasperson and Jeanne X. Kasperson.* The Kaspersons and the experts they have assembled examine the progress to date and the future prospects for success in the re-use of wastewater. They address four major questions: Is reclaimed water safe? Are water re-use systems economically feasible? Will the public accept reclaimed water? Will the managers recommend such systems? (The University Press of New England. $15.)

WHAT IS THE WORLD MADE OF? Atoms, Leptons, Quarks, and Other Tantalizing Particles. *By Gerald Feinberg.* Professor Feinberg uses a nonmathematical approach in his elucidation, for the nonscientist, of the achievements of twentieth-century physics. (Doubleday. $10.)

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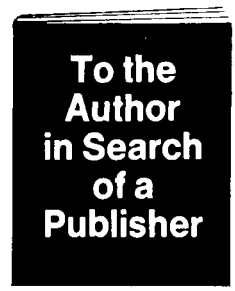

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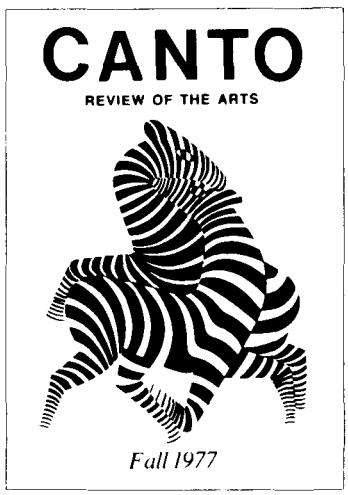

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The Reader Replies

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—EDITOR

Welcome Back from the Raft, Huck Honey!

The Kenneth Lynn essay (Summer 1977) isn't really up to the SCHOLAR's standards, and I cannot understand why it's there, except as an expression of reaction against Dropoutism (and not a moving one at that). Between pages 342 and 345 Professor Lynn has some interesting things to say about Mark Twain and his novel, but none of that directly relates to the preaching that is supposed to give the piece coherence. And good grief, when he notes at the end, ex cathedra, that Twain really wants us to know that Huck will go back, he ignores the sequel (reprinted about ten years ago in *Life*) of Huck and Tom out in the Territory doing just what Huck says he wants to do—escape being civilized. That example is worth at least as much as the passage Lynn cites from *Tom Sawyer Abroad*. If there was ever a *homo duplex*, it was Twain, and Lynn tries to deny that with his conclusion. Perhaps if Twain had shared Lynn's exaggerated fervor against Dropouting, he'd have stayed in the Rebel army.

KERRY AHEARN
Department of English
Oregon State University
Corvalis, Oregon

PROFESSOR LYNN replies: I did not mean to suggest that Huck and Tom never had adventures in the Territory. But the ending of *Huckleberry Finn* clearly indicates that they intended eventually to return to St. Petersburg, and the opening of *Tom Sawyer Abroad* shows that they did.

Rest in Prose: The Art of the Obituary

Quite apart from its parade of erudition, what struck me most about Sir William Haley's ruminations on obituaries (Spring 1977) was its haughty insularity.

Although obits in *The Times* of London may well be a trial run for their subjects' inclusion in the *Dictionary of National Biography*, it is my impression, from reading many of them, that they are written out of the clips—and tend to be warmed over, as most clip jobs ordinarily are.

It was for precisely this reason that the *New York Times*, for which I was the chief obit writer from 1965 to 1976, interviewed as many notables as possible *sub specie aeternitatis*. This was a genuine innovation in the art of the obituary in that it supplemented the clips with significant reflections by men and women on their lives.

A less insular view than Sir William's would have noted the *New York Times*'s efforts to break away from past strictures. The *Times*, of course, had long since recognized achievement as the criterion for obit space. We found room for scoundrels, too, who often proved more interesting and more revealing than men and women of straitlaced attainment. I should love to see a *Times* of London no-holds-barred obit of a scoundrel; none, I wager, exist, since Sir William would probably not agree that a successful scalawag could be said to be a man of achievement. Alas, for his readers.

ALDEN WHITMAN
South Hampton, New York

SIR WILLIAM HALEY replies: I am very sorry to have hurt Mr. Whitman's feelings. "Rest in Prose" set out the need for *all* obituaries editors, so far as they could, to choose writers with personal, professional, or other close knowledge of their subjects, and with qualifications to judge their achievements. That is certainly the practice of *The Times* (London), as the quoted extracts showed. The rogues' gallery is cheerfully conceded.

Mr. Chips

I wish to take exception to Werner Dannhauser's condescending review of Gilbert Highet's *The Immortal Profession* (Spring 1977). I

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do not disagree with his main point, that the book is "a rather disjointed artifice." It was a great disappointment to me, who, unlike Professor Dannhauser, did read, remember, and profit greatly from the spirit and letter of *The Art of Teaching*. That earlier book taught me something about generosity as a necessity of learning and teaching. It is the want of generosity in Professor Dannhauser's review that makes me feel I was not wrong in learning much from Gilbert Highet, and makes me guess I would have learned little from Professor Dannhauser.

Specifically, I object to the "mere nitpicking" and will not be disarmed by the reviewer's anticipating such objections. I do not like the sniffing out of optimism as somehow discrediting the author. I am unimpressed by a reviewer's taking offense because an author, having no reason to, has not chosen to discuss the reviewer's particular passions, in this instance Marx and Nietzsche. Reviewers who damn another's clichés surely should not do it in a cliché: "Clichés abound." Worse, that most stereotyped put-down of reviewers: "One must hasten to add, therefore, that the book contains a goodly number of genuine insights, for Gilbert Highet's talents are by no means inconsiderable."

Finally, what I object to most of all is the casting out of Gilbert Highet from any respectable academic fold by affixing that shopworn tag "middlebrow." His career, his scholarship, his writing deserve better than that, notwithstanding a book in his later years which falls far short of standards he himself set.

KENNETH E. EBLE
Department of English
University of Utah
Salt Lake City, Utah

PROFESSOR DANNHAUSER replies: I am saddened by Kenneth E. Eble's disapproval of my book review, for I have learned from his writings. Moreover, I am troubled by his charge that I am lacking in generosity, that being a virtue I value highly, though not one I am able to learn much about from reading modern books. Whether I am generous enough as a teacher is for my students and not Mr. Eble to decide; I am willing to abide by their verdict.

I am both happy and perplexed to have Mr. Eble agree with my main point. Since Gilbert Highet's book was not a good one, and Mr. Eble knows it, why does he not think that I owe it to readers to point that out? I suppose he objects to the tone of my review, but would a gentler tone not constitute the very condescension he condemns? It was precisely because I judged Gilbert Highet by the highest standards that my praise of the book's "genuine insights" was far from a condescending "put-down." It is mean spirited of Mr. Eble to think so.

We come now to the matter of nitpicking. Well, at least what I picked were really nits. I note that Kenneth Eble is no slouch when it comes to that art. In a single letter, he picks more nits than I picked in a whole review. And some of them aren't even nits, as I hope to have shown.

The Limits of Ethnicity

My humble thanks to Professors Howard F. Stein and Robert F. Hill for reminding me, an "unmeltable" ethnic, of my lowly condition. I was beginning to imagine that my Ukrainian origin need no longer be a source of shame. I was beginning to delude myself that I need no longer be regarded as a member of an "inferior race." In their article "The Limits of Ethnicity" (Spring 1977) they have proven me wrong. Archipenko, Brzezinski, Einstein, Kistiakowsky, Mestrović, Metropolis, Sikorsky, Stravinsky, Szent-Györgyi, Zworykin notwithstanding (their names are legion), we ethnics have "neither done nor achieved anything" in America and we must abjectly continue to wear our "badge of shame." We must never forget that in America every race is equal, except that *the "mainstream . . . majority culture" is more* equal.

Let me conclude this letter with a verse from *Gates of Prayer* (Central Conference of American Rabbis, New York, 1975):

> To be a Jew in the twentieth century
> Is to be offered a gift. If you refuse,
> Wishing to be invisible, you choose
> Death of the spirit, the stone insanity.
> Accepting, take full life, full agonies.

This beautiful prayer speaks for all of us "unmeltable" ethnics without making us any less American than Messrs. Stein and Hill. Is there no gift from the past for these gentlemen?

OLEKSA-MYRON BILANIUK
Professor of Physics
Swarthmore College
Swarthmore, Pennsylvania

Freedom of Expression: Too Much of a Good Thing?

Warden Sparrow (Spring 1977) reminds me of the two old ladies who lived in a house on the sea. They called the police and complained that naked men were swimming in front of the house. The police asked the men to move down the beach a mile

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or so and the old ladies immediately bought binoculars, spied on the men, and made a second complaint.

The Warden is alarmed lest he, in all innocence, should chance to pick up a book and find its contents pornographic. This has, I must admit, happened to me on rare occasions and I have always found it impossible to put the book down without reading it through. The Warden wants to forbid me this pleasure. Surely the solution to his difficulty is never to glance into a book without first asking me, or some of the millions like me, to sample the book first. Monarchs used to have wine tasters to protect them against poison, so why should not Wardens have porno peepers?

The Warden, however, is not content to protect himself from what he finds offensive. After all, obscenity offends him but it does not really do him any hurt—it hurts only *us*—all the rest. And the Warden is concerned for the moral purity of his neighbors. If, he says, I am watching television and find the program obscene, it is not enough for me to leave the room: my wife and children might want to watch and there would be a fearful family row if I insisted on switching the thing off. So we must have a law and a censor to make sure that only what *I* like will be broadcast. *My* wife does not agree.

Not content with protecting himself from having obscenity thrust upon him, the Warden wants to deal with it as the Puritans dealt with the evil of episcopacy—abolish it root and branch. He has failed to distinguish between sin and public decency. It may be argued, I suppose, that God wants sin (or bishops) to be eradicated. But "sexual intercourse, excretion, and parturition," which for the Warden evoke "shame and disgust," are not sins, although theologians have argued whether they happened in the Garden of Eden. Most of us, perhaps, would like to see an apron of fig leaves concealing these private functions from the public at large. I myself, however, find the fig leaves on classical sculpture in the Vatican Museum offensively indecent and I hope the Warden will join me in a petition to have them removed.

Richard Schlatter
University Professor of History
Rutgers University
New Brunswick, New Jersey

A Literature Against the Future

We wish to emphasize one aspect of science fiction that James Stupple (Spring 1977) apparently misunderstands, and that Robert Hawkins and Judith Heller in their letters (Summer 1977) do not fully expound. The method of the professional predictor differs greatly from that of the science fiction writer. As Heller points out, the purpose of SF is not to provide the accurate computer-simulation-type study of the future, "based on a firm empirical foundation," which Stupple apparently believes is necessary for science fiction to have any value as a genre.

Computer simulations and other forecast attempts are limited since their authors have to use the best available evidence and theories—which can be rapidly invalidated by the advance of science and the march of events. Such studies are not uniformly successful. (Remember the Edsel?) The science fiction writer avoids these limitations by simply making an educated guess. However, he and the scientist share one characteristic; both begin with a hypothesis and then predict the consequences. The scientist seeks the consequences through controlled experiments; the science fiction writer explores the consequences by writing fiction. The science fiction writer expects to be proven wrong as often as the scientist is. The social value of science fiction, then, is that it illustrates the range of possible futures from which we can choose by our present acts.

Furthermore, we could not help noticing that some of the stereotypes Stupple describes as "the usual lineup of stock characters" are becoming increasingly rare in modern science fiction. In particular, the "child-woman" and the "earth mother" are rapidly becoming endangered species—we could not think of one recent example of either type.

Finally, we are amazed by such a statement as "what it [Viking] found . . . has undoubtedly done SF permanent harm . . . Mars is nothing more than a lifeless desert, hardly the kind of place to instill in us the 'wonder of space' for which science fiction has been so famous." Anyone who believes that Mars as seen by Viking is sterile and boring can hardly be expected to feel wonder at anything even vaguely scientific.

Brent A. Warner
Department of Physics
Ohio State University

Constance A. Warner
Department of English
Michigan State University

November 9th-12th, 1977, WORLD CONFERENCE ON DYSLEXIA, 28th Annual Meeting of the Orton Society, Inc., Fairmont Hotel, Dallas, Texas. For further information write: Orton Society, 7986 Fallmeadow Lane, Dallas, Texas 75248 (214) 324-1481.

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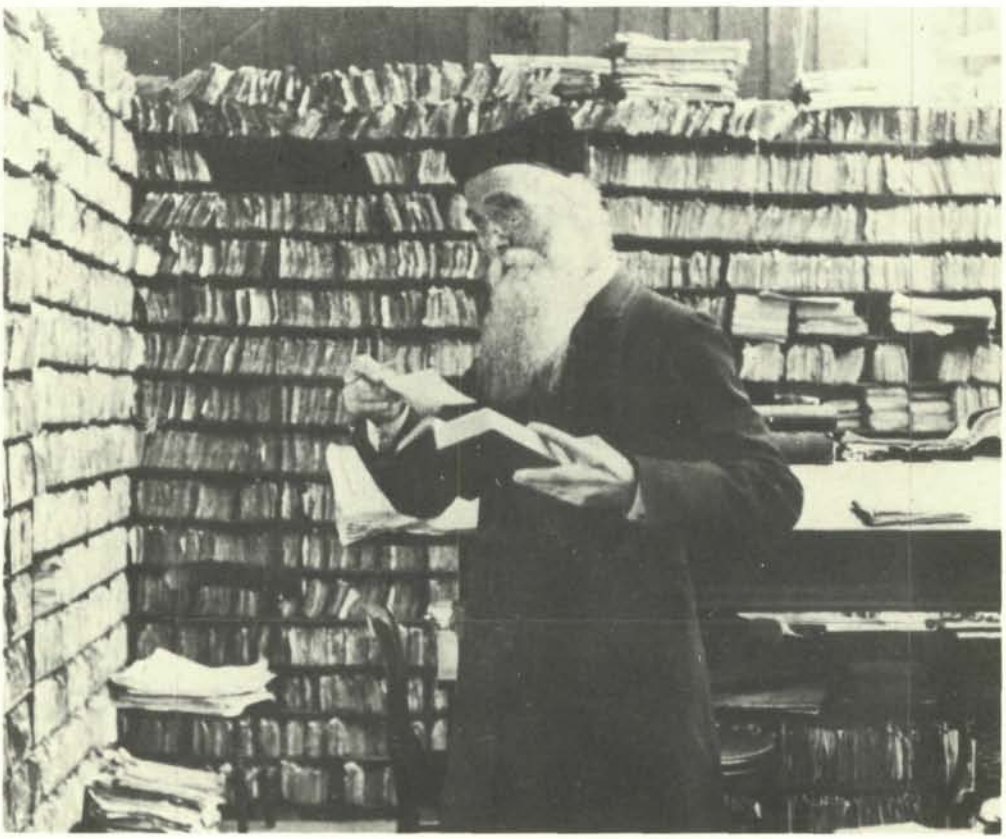

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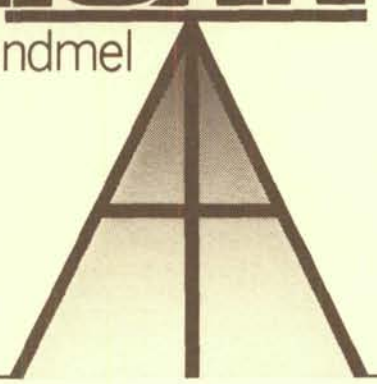

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